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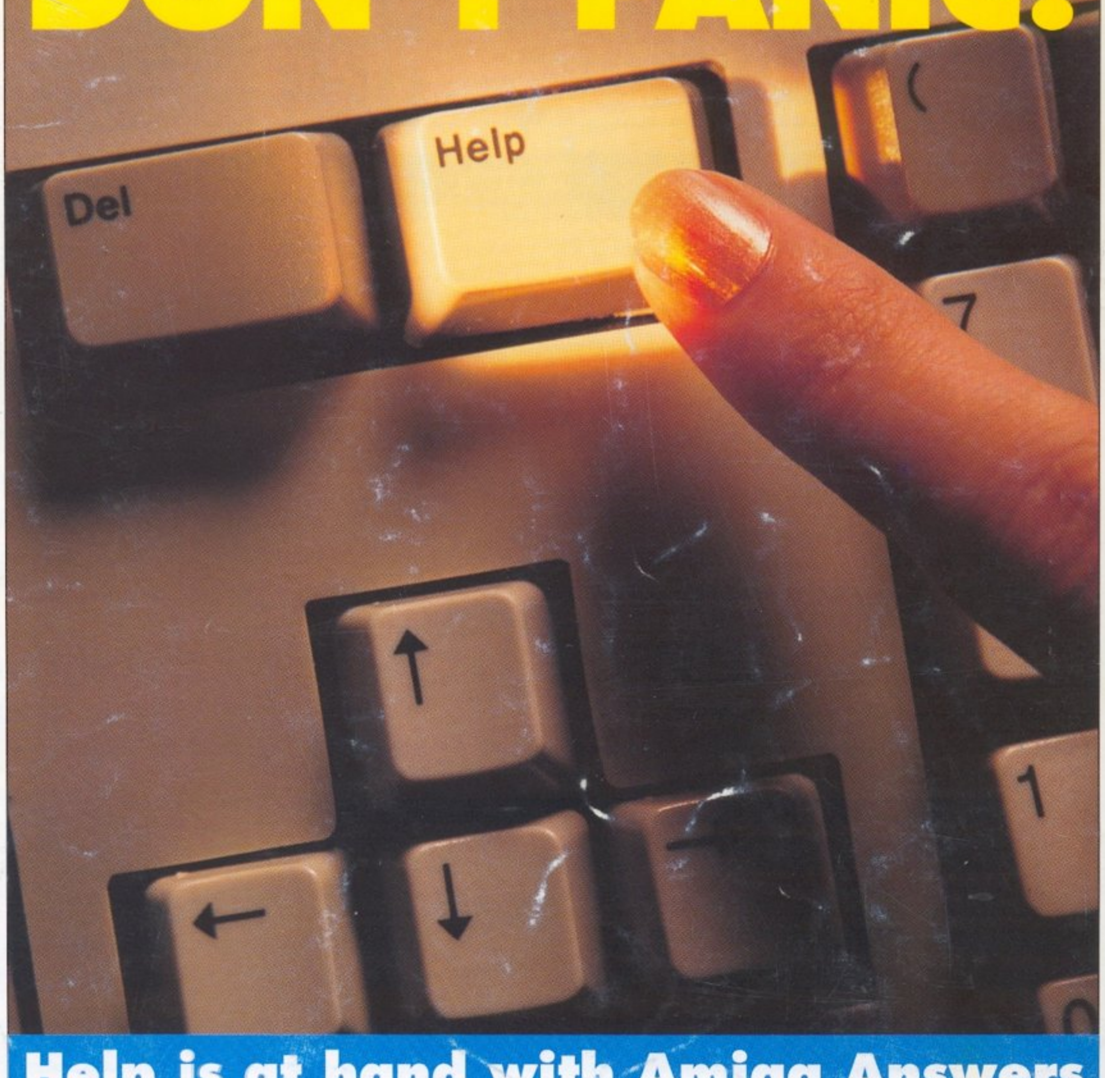
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AMIGA SHOPPER

SHOPPING LIST

This is an alphabetically sorted, quick-reference list to everything in the issue. Just look for the name of the software, hardware or subject you require and it should be here. Some things are cross-referenced under more than one heading for ease of use.

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AMIGA ANSWERS

Challenge our panel of experts with your Amiga questions. Printers, graphics, DOS, Basic – all is revealed on page 18.

SOFTWARE

HARDWARE

PUBLIC DOMAIN WORLD

The idea of free software is great, but how do you sort the wheat from the chaff? Turn to page 119 for our unique PD guide.

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Important Note: This offer is strictly only available to LEAs, schools, students, educationalists and teachers – please provide official order, or identification such as a letter confirming student status from school or college, or copy of DES card, or similar. Delivery on this package may be up to 14/21 days from date of order.

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A2630 68030 card, populated to 2MB for 2000/1500	£999
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Jail sentence for software pirate

A computer dealer has been prosecuted for the duplication of leisure software and sentenced to three months imprisonment. The prosecution was brought by Nottinghamshire Trading Standards Authority after an investigation initiated by FAST, the Federation Against Software Theft.

On June 21 Andrew Jayes, of A&J Software in Nottingham, discovered that selling software on the cheap was not a good idea when he was found guilty of five offences under the Copyright, Designs and Patents Act of 1988.

Said Bob Hay, chief executive of FAST, "I am sure that the decision of the Magistrates in this case will serve as a strong deterrent in the future."

New package offers top games with upgraded Amiga

A500 bundled with DPaint 3, 1Mb RAM and... Bart Simpson

A new Amiga bundle, entitled Cartoon Classics, has been announced by Commodore. Originally intended for release in September for the Christmas market, the bundle has been announced earlier because of the recession.

Stephen Franklin, managing director of the company, described Cartoon Classic as "the best bundle we have ever assembled". It consists of three games, two of which are yet to be released, and Electronic Arts' stalwart *Deluxe Paint III*. The games are Ocean's *Bart Versus the Space Mutants*, based on the cult TV cartoon *The Simpsons*, *Captain Planet and the Planeteers*, Mindscape's contribution to ecological awareness, and the already famous *Lemmings* from Psygnosis.

Deluxe Paint III replaces version II of the software included with last year's Screen Gems pack, just as interest in it as a stand alone product is dropping due to the imminent release of *Deluxe Paint IV*. Simon Jeffreys of Electronic Arts was reportedly pleased with the bundle, saying, "We're delighted *Deluxe Paint* has been part of Commodore's success and we are glad to see it bundled along with such high quality games." Comparing Commodore's strategy to that of Atari, which bundles 23 games with the ST, he described the games as "teasers which show what the Amiga can do", whereas he thought the Atari bundle tended to discourage users from buying more software.



Don't have a cow, man, but Bart's in the new Amiga pack – and proud of it. Also included is *Deluxe Paint III*.

The inclusion of *Bart Versus The Space Mutants* in the package marks the second time in three years that Commodore has procured a major licence for the Amiga, the last being in 1989 with *Batman*. This was very nearly a hat trick: last year Mirrorsoft pulled out of a deal at the last minute to include *Teenage Mutant Hero Turtles* as part of the Screen Gems pack.

As well as the software, the pack contains an A500 (fancy that!), a TV modulator and a 512K RAM expansion. Both Ocean's and Mindscape's games will be specially expanded versions to take account of the extra memory. Despite the recession, Commodore hopes to sell 50,000 units over the summer, and a further 150,000 between September and December.

Hard disks offered

A new line in hard disk drives for Amiga 500 owners have been released by Protar. As well as being competitively priced, the A500HD is claimed to be five times faster than the Commodore A590 drive.

A variety of configurations are available, starting at £279 for a 20Mb model to £939 for a 160Mb Quantum model. An internal disk cache is an optional extra, speeding up data throughput by as much as 50 per cent. Up to 8Mb of RAM can be added internally to the drives. A price for this has yet to be finalised, but expect to pay between £50 and £60 per megabyte.

The A500HD's casing looks similar to that of the A590. Like the A590, it has an external SCSI port for daisy-chaining extra drives. It also has a games switch, for switching the drive off when required.

Protar, already a leading force in the Atari ST hard drive market, hopes that the A500HD will put it in a similar position in the Amiga market, which it sees as providing very little in the way of competition. Protar ☎ 0923 54133.

Names confusion

The recent closure of SCS Computer Software, the Tyne and Wear-based PD house, has be causing problems for the folks at PCS International, the unrelated Wigan-based company. Some parties have apparently been mistaking the demise of SCS for the demise of PCS. Toby Green of PCS would like to point out that his company is in no way connected with SCS, and is still happily trading.

More printers

A printer hits the Amiga market this month from Seikosha. The SP2415 is a 9-pin dot-matrix unit.

The machine is said to be fast, with a claimed speed for Near Letter Quality print of 50 characters per second. Two emulation modes are provided for purposes of compatibility.

The SL2415 costs £376. Seikosha ☎ 0753 685873.

Catchword catches an Amiga

by Gary Whiteley

Once again the Amiga has been showing its true colours (and then some) in the wonderful world of television.

Sixty episodes of *Catchword* (not to be confused with ITV's *Catchphrase*) have recently been completed by BBC Scotland, with help from an Amiga fitted with the Amiga Centre Scotland's 24-bit Harlequin board to do the graphics honours.

As well as providing live feeds of 24-bit animations and graphics for the word-based game show, the Amiga was also used for live stereo sound samples and still had enough free capacity to be able to load animations in real-time from hard disk.

The Amiga was seen as a cost-effective way of replacing more expensive graphics hardware to provide high quality graphics which could be run directly into the programmes.

Nationwide transmission should take place in the autumn on BBC2.

And there's more news from Scotland's pioneering Amiga dealers with an announcement that *TV Paint*, the fully featured 24-bit paint program for the Harlequin board, is now finished and should be shipping as you read this. We'll have a full review soon.

For more details of the Harlequin board and *TV Paint*, contact Amiga Centre Scotland on 031-577 4242.

The news pages are compiled by Cliff Ramshaw.

CDTV secrets

It seems that the Welcome Disk supplied with CDTV machines has been put together without that loving care and attention to detail for which Commodore is renowned.

Reports are filtering through of hidden files on the disk which should never have seen the light of day. Of the possible 550Mb on a disk, only 16Mb are used by the Welcome software. The rest of the space is filled with C source code, backup files and unused pictures. A pre-release version of the boot logo is also lurking on the disk somewhere, along with the accompanying invoice from the artist. Most surprising, however, is a digitised picture of Saddam Hussein along with some digitised speech proclaiming, "I've fallen down and I can't get up!" Let's hope that a similar quote and a picture of a CDTV will not be present on future CD-I machines.

Takeover

In a bid to expand into the software market, American hardware firm GVP has taken control of the entire product line of Lake Forest Logic. Erik Quakenbush of Lake Forest has also gone over to GVP, filling the recently-created position of director of software development.

GVP already has the distribution rights to *Scala*, and with its acquisition of Lake Forest's stock it adds *The Disk Mechanic, ADAPT*, the *680x0 Assembler* and *Macro Paint* to the line. Gerard Bucas, company president, hopes that this line will be further extended by the development of "top-notch software in-house". Considering the superb quality of GVP's hardware products, this remark can only be taken seriously.

Existing users of Lake Forest's software can get technical support through GVP's established channels.

Answer to your prayers

Give your Amiga the Word – not Microsoft's *Word*, but the Word of God, courtesy of the *Context Bible* from American firm Neuralink.

Originally selling at $120, the Bible's price has now been reduced to $50 to keep in line with those mysteriously moving market forces. A version is available with *Thinker* (the hypertext program reviewed in *Amiga Shopper* issue two) for $100.

The Bible comes on 17 floppy disks, but can easily be installed on a hard disk if you prefer. Because of its hypertext abilities (easy cross-referencing of verses and words, inclusion of diagrams, search facilities and so on), it is expected to be particularly of value to class and home Bible studies, as well as those involved in writing commentaries, study books and so forth. The *Context Bible* is only available from Neuralink, Texas, USA ☎ 010 1 806 793 0423.

Protext gets an upgrade

In response to hundreds of letters and phone calls from users, Arnor has once again upgraded its highly thought-of *Protext* word processor, taking it to version 5.5. The major improvement is the inclusion of the long awaited and much needed thesaurus. Based on the Collins pocket thesaurus, this will offer writers the choice of 827,000 alternatives picked from 43,000 head words – cross referenced by type and usage.

Other improvements and fine tuning include an option to run the program in a custom screen; automatic hyphenation; widow and orphan control; analysis of text by word redundancy; viewing of files by date and size; and mail-merge linked directly to *Prodata*. The the spelling checker has also been enhanced to catch simple grammatical errors such as repeated words (like the one above) and lack of capital letters at the start of sentences.

Protext 5.5 will retail at £152.75, with upgrades costing £30 from version 5 and £60 from 4.3 or 4.2. But is *Protext* getting too expensive for a market which expects to see document processing capabilities in the £100 plus bracket? Arnor's Doug Thompson commented, "Since the early days, *Protext* has been 'the writer's choice'. At the expense of fancy graphics it offers speed when manipulating even a very large document; logical keystrokes; and a wide range of other facilities such as allowing the user to modify or create the printer drivers." Expect a full review of the program soon.

An upgrade to Arnor's *Prodata* has also been announced. The new version, 1.2, offers enhancements such as pull-down menus, control from either mouse or keyboard, label printing, automatic record numbering and a 'merge database' facility. *Prodata* 1.2 costs £99.88. An upgrade for 1.1 users is available for £35.25.
Arnor ☎ 0733 68909.

Amiga version of power PC DTP package is here

by David JR Ward

Desktop publishing on the Amiga has taken a major step forward with the 'release of Advent's *3B2* package.

The package has already received great acclaim in its PC incarnation, and has only recently been ported across to the Mac. Although far more powerful than anything currently available on the Amiga DTP scene, the package will only run on Amiga 3000s running Unix and X Windows.

***3B2* comes with 850 fonts, sizeable from 1 to 1,000 points. Many more PostScript fonts are also available. It supports graphics and versatile text flowing features. A foreign language capability is included for non-Latin based languages such as Arabic or Greek. Output from the program is suitable for a PostScript laser printer or typesetter. A price for *3B2* is yet to be announced. Advent Desktop Publishing ☎ 0793 511432.**

Thank 'eavens for little printers

The world's smallest printer has been launched by Citizen. Called the PN48 Notebook Printer, it measures only 297 by 90 by 50mm, but will still handle standard A4 sheets.

Although designed for the portable PC market, the printer could conceivably be of interest to those users who are short of desk space. It can be powered by a mains transformer or from a supplied NiCad battery, which is good for 25-30 pages before a recharge is needed.

Two fonts are supplied with the printer: Times Roman and Courier. These can be printed in a variety of sizes and styles. Print speed is fast, at a claimed 53 characters per second in letter quality mode. Rather than using an impacting head, the printer uses a specially designed, high resolution head supposedly capable of producing output comparable in quality with a laser printer.

Four emulation modes are supported: Epson LQ500/850, IBM Proprinter X24, partial NEC, and Citizen. Connection to the computer is by a parallel interface.

The printer costs £381.88 and is available through Citizen's distributor network. Citizen ☎ 0895 72621.

PSSST!

Heard any good news lately? *Amiga Shopper* is always on the lookout for news stories. If you've got the low-down on a new product or a bit of juicy scandal, call us on 0225 442244. We even pay for stories that we print. Can't say fairer than than, now can we?

Get those digits moving

Owners of JCL's ColourPic and SuperPic video digitisers will soon be able to step into the world of animation with an upgrade from JCL, flamboyantly named AniMate, which comes in the form of a RAM expansion card, a time marker unit, software and manual.

Using AniMate in conjunction with one of the two digitisers, it will be possible to produce quarter-screen sized animations on the Amiga from a source such as a VCR. Recordings can be made in real-time or in single step mode for model work. The time marker system enables the joining together of short sequences to create lengthy animations. These short sequences are stored in AniMate's own RAM, where they can be previewed on-screen before conversion into IFF files. The extra memory of AniMate also enhances the digitising of still images, so it will be possible to digitise overscanned and interlaced images. AniMate will be available as a £150 upgrade for owners of a JCL digitiser, or ready fitted to either ColourPic (for £549) or SuperPic (for £649). JCL ☎ 0892 75791.

Clip art packs add pictures for DTP

by David JR Ward

Kuma has just released its popular PC/Macintosh clip art library for the Amiga. the company is thus entering an Amiga market which has been hitherto dominated by what is available from public domain libraries.

At present there are 13 disks available, each containing approximately 40 bit-mapped full-screen images in IFF format. These can be used in desktop publishing packages and the like. Titles available at the moment are: Transportation, Birds & Animals, Trees & Plants, Business Graphics, Food & Beverages, People, Occupations, Caricatures, Special Occasions, Signs & Symbols, Sports & Recreation, Education, and Frames & Borders. More titles are planned for the future.

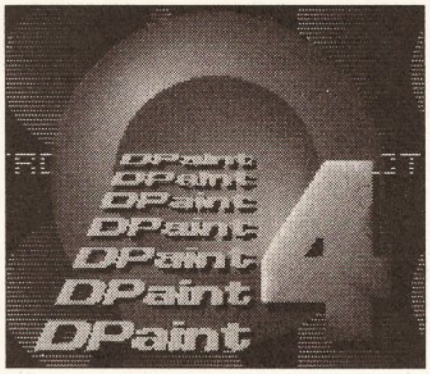
Each disk costs £19.95. Kuma Computers ☎ 0734 844335.

New Deluxe Paint due in September

The most popular paint program in the Amiga world has just got better. *Deluxe Paint IV*, from Electronic Arts, is due for release in mid-September.

The most significant change in the program is the inclusion of the HAM graphics mode, allowing all of the Amiga's 4,096 colours to be on screen at once. Previously, *DPaint* users had to look elsewhere for such facilities. Now, just about every painting facility imaginable is included in the package. Not only is it possible to draw HAM pictures with *DPaint IV*, but HAM animations can also be created.

The program's palette facilities have been considerably enhanced to take into account the extra colours, using ideas from the PC 256-colour VGA



***DPaint IV* – due out in September.**

version. Animation is made easier by with a lightbox facility, similar to the onion skin technique used in Disney's *Animation Studio*, whereby previous frames from an animation are shown in a lighter colour 'beneath' the one currently being worked on.

One particularly intriguing new feature is the Metamorph option. This creates a similar effect to that of 'tweening', in which a structured drawing image is changed by a succession of geometric operations into a final, different image. Metamorph does roughly the same thing but for bitmapped brushes.

Deluxe Paint IV will cost £89.99 from Electronic Arts ☎ 0753 549442. While other magazines have reviewed the beta test version, we prefer to wait for the full release, due soon; look out for a review then.

SHOW REPORT

Multimedia '91

by Janet Bickerstaff

Multimedia, although it has its critics, is currently enjoying a position at the forefront of computer fashion; describing it as the 'thing of the future' would hardly be making a bold statement. Hence the interest generated by the Multimedia '91 show held at London's Olympia between the 25th and 27th of June.

Commodore itself declined to make an appearance at the show – a strange decision considering its current desire (many would say need) to push CDTV – but Amiga 3000s and CDTVs were nevertheless present on quite a number of different stands.

A sterling contribution to law enforcement was being made by the A3000, which is used by the National Computer Centre Training Department to run *Vistrain*. *Vistrain* is a training system for the police management of football matches, using real video footage and acted out scenes to represent different situations which could occur, and allowing officers to then make crisis-management decisions.

Elsewhere, the A3000 was being used to demonstrate Kings College School of Dentistry's *Endodontics for the Deciduous Dentition* (as reported in last month's issue). Even the program's name is quite a mouthful (ho ho), and Amiga graphics brought to the public's gaze things they would probably rather not have seen…

That is something that certainly cannot be said of the Bitmap Brothers' *Xenon 2*, now up and running on CDTV. It was present at the Mirrorsoft stand, complete with tracks of previously unreleased material and enhanced sound effects. Although it is an exciting game, however, it's hardly indicative of CDTV's real capabilities.

Software which actually attempted to make something of the CDTV concept was also on display, in the form of two packages by Animated Pixels. These were the King James version of the Bible and the *Illustrated Shakespeare*, both with fast word search facilities for the studious. Animated Pixels has a number of other projects in the pipeline, covering subjects in the National Curriculum. The most exciting of these will be a Shakespearian karaoke machine: an audio version of *Macbeth* in which the student can participate by speaking the lines of a chosen character. One can only hope that Amiga-style speech synthesis will not be used – the thought of a dalek wondering if this is a dagger it sees before it is a trifle alarming. To help in the production of CDTV disks, Animated Pixels has developed its own authoring system, *BookWORM*, which will create disks for use both on IBM PCs and CDTV.

Educational software for the younger student was also in evidence at the show. The Multimedia Corporation was demonstrating its CDTV title, *A Bun For Barney*. Already people are learning from multimedia mistakes – a Barney Bear title produced by an American company has received adverse publicity in the UK because the bear looks the wrong way before crossing the road.This is not the case, though, with the safety conscious hero of *A Bun For Barney*.

Although not exactly taking off with a leap and a bound, multimedia software is at least making the first few tentative steps down the runway. It should be remembered that it was not too long ago when the Amiga was struggling in a near-vacuum of decent software. As far as multimedia goes, things can only get better.

Monitor takes flight

Monitor manuafacturer Philips has bundled its popular CM8833 Mk2 monitor together with Microprose's flight simulator *F-19* in a package it is calling "Totally Unreal".

In addition to the free game, there is also the chance to win a session in a real flight simulator, if you'll pardon the oxymoron. A champagne helicopter flight to Luton (no, really) is being included in the prize.

The bundle will be available through all the usual retail outlets from September onwards, and will cost £269. Philips Personal Information products ☎ 081-689 4444.

Building new interfaces

Creators of multimedia presentation systems previously stuck for ideas on the icon front can now breath a sigh of relief with the release of the *Interface Design Kit* from INOVAtronics.

The kit comes as a collection of four disks of clip art, containing more than 500 images in total for use in authoring and presentation packages such as *AmigaVision* and *CanDo*.

Designers can spruce up their packages with high- and medium-resolution brushes illustrating commonly used functions and icons. These brushes include such images as mathematical symbols, buttons, pictures, sounds, disks, videodiscs, music, printers and documents.

An accompanying 30-page manual provides details of where on the disks the various icons can be found. With over 500 images to choose from, such a manual is obviously an essential part of the package. The *Interface Design Kit* is distributed in the UK by Checkmate Digital ☎ 071-923 0658. The price has not been fixed, but will be around £50.

Filtering out the sounds

Music freaks are in for a real treat this month with the impending release of Omega Projects' Sound Enhancer. This simple little box of tricks uses a special filtering system to boost the high frequencies, thus eliminating the low-pass filter already fitted to the Amiga and providing real presence to everything from music to games. The net result is a flat frequency response between 8kHz and 22kHz.

A prototype unit was on show at the recent 16-Bit show and production units should be arriving by the time you read this. The self-contained unit, which requires no external power source, has a bypass switch so you can hear the difference. The price is £34.95. Omega Projects ☎ 0925 763946.

Ghost in the machine

Virtual reality comes to the Amiga, albeit in a small way, in the form of Domark's *3-D Construction Kit*.

The program is based around the Freescape 2 system, which has been used as the graphics engine driving several of the company's leisure titles. Now it is possible for a user to design and build their own environment with the program's building blocks. Once created, the environment is displayed in solid colour pseudo-3D on the monitor and can be 'walked through'. Animated sequences can be included in the artificial world, as can sound effects taken from the *Construction Kit*'s internal library.

As well as its obvious leisure applications, Domark sees the program as being an educational tool, of use in 3D modelling, visualisation and even urban studies. The program costs £49.99. Domark ☎ 081-780 2222.

SHOW REPORT

The 4th International 16-Bit Computer Show



By Cliff Ramshaw

More of an indoor market than a platform for new product releases, the 16-Bit Computer Show was mecifully less than over-crowded on the morning of Friday 12th July. I mean the word 'mercy' to apply not to Westminster Exhibitions, the show organiser, but to myself and the others like me who had drunk more than was perhaps wise the night before. Nevertheless, I was reliably informed that many more people were expected over the weekend – 25,000 in total. Fortunately the venue, Hammersmith's Novotel with its spacious, carpeted, air-conditioned facilities, seemed more than equal to the challenge.

Fighting my way past scores of punters struggling to leave with box-loads of electronic goodies, I had no trouble in locating a bar (there were two: one on each floor) where the weary traveller could get sandwiches and beer for sustenance throughout the day. Once fortified, it was time for me to enter the fray...

The first floor of the show, in general at least, was devoted to the more serious side of computing. On the Surface UK stand, a number of new products were on display, including a very nice looking thermal transfer colour printer from Shinko, costing a paltry £4,230. Version 1.2 of *Saxon Publisher* was being demonstrated, sporting PostScript compatibility extending to Compugraphic and Adobe fonts. Other enhancements include a PostScript screen preview, allowing the user to check the accuracy of colour separations, and support for the *ProWrite* and *Excellence!* word processors. *Saxon Publisher* 1.2 costs £249.95. Also on display was *Caligari*, the three dimensional modelling/rendering package from Octree Software. *Caligari* is different from most rendering packages in that objects are defined in a real-time, 3D environment with the mouse, and because it uses a different, faster method than ray-tracing to create images. It is available in four versions, each with more features and a corresponding higher price. The consumer versions costs £19.95. Surface UK can be contacted on 081-566 6677.

Many of the Amiga peripheral stalwarts were there, such as HiSoft, GFA, Power Computing and Pandaal Marketing, but new products were sadly lacking. One company which did have something new was Protar, a German-based company already well-entrenched in the Atari peripheral market. On display on the Protar stand (which, incidentally, must win first prize for the most eye-catching of the stands there) was a range of hard drives for the Amiga 500. Fast and cheap, the drives also look very nice, fitting the Amiga's contours perfectly. See elsewhere in the news pages for more details.

The most obviously exciting stands were those with huge monitors displaying flash graphics. The EMR Video stand was one of these, where the Videopilot editing system was being demonstrated. This is a hardware/software combination which enables an Amiga to be used to edit video footage from three sources and record to a fourth. Both home and professional video sources are supported. Once the user has chosen the various shots required to make up the final montage (up to 500 individual shots may be used), the package can be left to assemble them all automatically, removing the need for user intervention from a normally time-consuming and frustrating process. The Videopilot costs £998.75 from EMR Video ☎ 0451 810185.

Soon it was time to descend to the ground floor, largely the abode of the box-shifters and public domain libraries. Here, with digitised acid-house and rock music blasting out from Amigas on all sides, a few gems were nevertheless to be found.

New Dimensions was displaying a useful accessory for perpetrators of this sort of audio aggro: Technosound Turbo, the latest version of the Amiga sampling package. At £35.99 (plus £1.50 for postage and packing) for both stereo hardware and software, it is ideal for those wanting to make a start in sampling. Various effects such as echo, digital delay, loop and reverb can be added to the sampled sounds, as well as more esoteric transformations such as dalek and legless. One new feature of particular interest is the package's ability to link samples together to create whole songs. New Dimensions can be contacted on 0291 690933.

A number of novelty products were also on show, including two types of keyboard overlays. The Silverbird overlay consists of a cardboard template which fits around any but an A1000's keyboard. The user is then free to write the functions of the keys on the adjacent squares – damned useful for playing complicated flight simulators. A pack of five overlays costs £5, plus 80p for postage and packing in the UK. Silverbird Computing, 47 Barton Road, Harlington, Beds LU5 6LG.

Kador's offering, Seal 'n' Type, is a see-through plastic affair which fits over a keyboard and protects it from the dangers of dust, dirt and coffee. Typing is not inhibited. The Amiga version costs £10.95 from Kador on 0443 740281.

Despite its occurrence during the traditionally slack summer months in the middle of a recession, the show clearly demonstrated the extraordinary interest that the Amiga has generated, and the support that third-party suppliers are continuing to give it.

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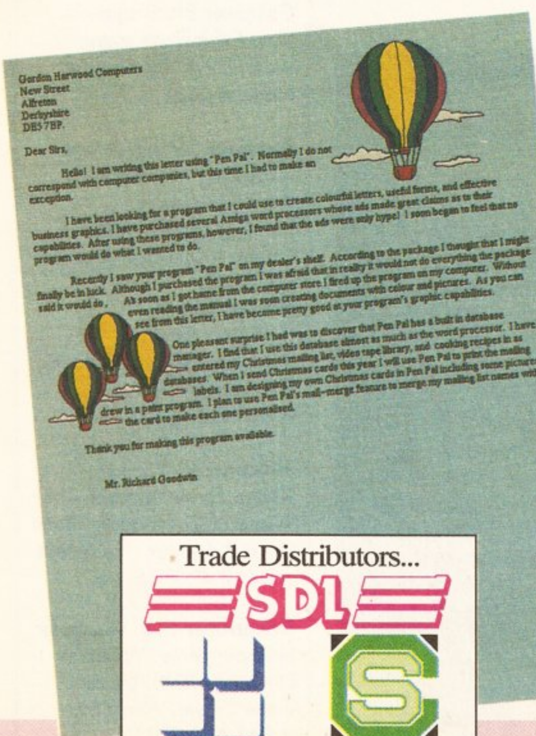
."...its handling of graphics is unsurpassed: Pen Pal is the only program I tested that will automatically wrap text around graphics..." *Amiga World...Jul. '90*

."..without beating around the bush Pen Pal is very special.." - "There is little to fault Pen Pal and it deserves to do well." *Amiga Format...Dec. '90*

"...I am extremely pleased with your product especially the Graphic Capabilities within the Word Processor. Having the Database on the same disk has made PEN PAL the best program I have..." *D.S.B., Plumstead, LONDON*

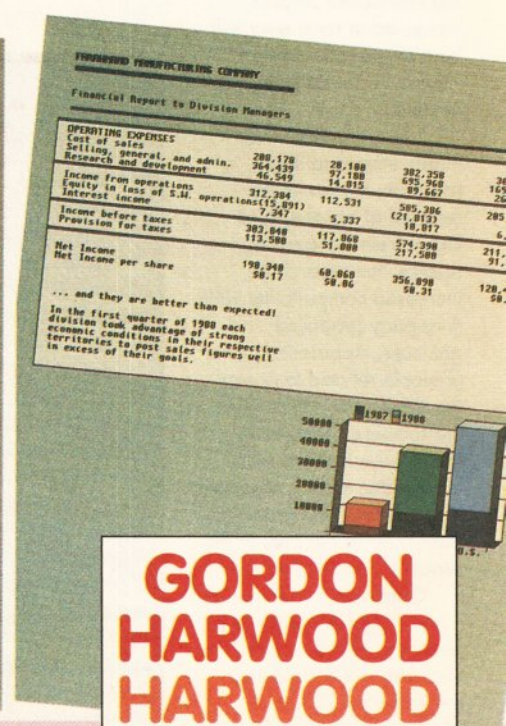
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Man's (and Woman's) Best Friend



OctaMED upgraded

As reported in *Amiga Shopper* recently, Teijo Kinnunen has upgraded his freeware *MED* music editor to support eight simultaneous instruments. And further work has resulted in a program which will support full musical notation.

MED and the later *OctaMED* have always used the tracker system where notes where represented by their names rather than musical staves. Although this system affords great speed, it is impractical as a true composition system and *OctaMED 2* is set to change all that. For the first time, composers will given then choice of composing using a tracker or stave layout – but will be able to display and print music anyone can play!

The original (tracker) version of *OctaMED* is still available for £10 – a printed manual is currently in production. When *OctaMED 2* arrives later this year, an upgrade for registered users will cost half the advertised price (which has not yet been fixed). AmigaNuts United ☎ 0703 785680.

Big upgrade

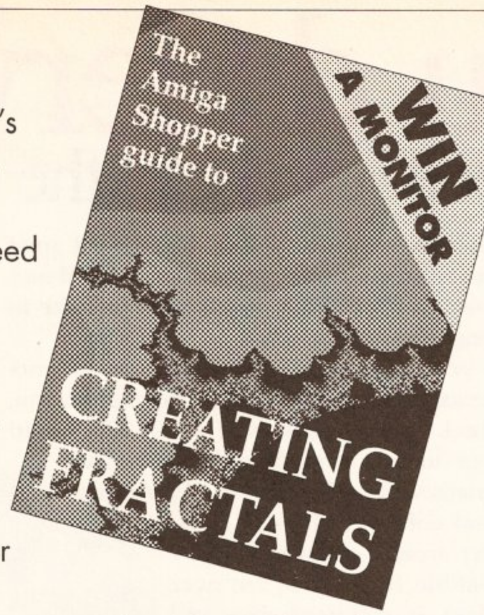
Users of Alternative Image's *Big Alternative Scroller* (reviewed in issue one) will be pleased to know that version 1.03 has been released.

There are two major improvements to the program: the first is the removal of absolutely all flicker from the scrolling display; the second is increased compatibility with third-party produced genlocks. Apparently, some genlocks refused to accept the signal from version one of the software. Alternative Image says that this was largely due to lack of support from genlock distributors, but adds that 90 per cent of the problem has been solved.

Owners of version one of *BAS* can get an upgrade by returning their disks and enclosing £3.50. *BAS* is available for £50. Alternative Image ☎ 0533 440041.

FREE with next month's issue of *Amiga Shopper*: *The* Amiga Shopper *Guide to Creating Fractals* – all you need to know to write your own Mandelbrot programs and create stunning colourful graphics. PLUS the chance to win a Philips 8833 Mk2 "Totally Unreal" colour monitor package to view your creations on.

Only in *Amiga Shopper* – on sale September 5



Amiga is a sign of change in the East

You would be forgiven for thinking that there is a paucity of Amigas and accompanying literature in Hungary, but you would be wrong. We have recently had news of *Amiga Magazin*, a Budapest-based magazine put together by Bordas Bence and his friends.

All of the people involved have full-time jobs; it is a testimony to their enthusiasm that they manage to produce a monthly magazine in their spare time. Bordas reckons that there are between 10,000 and 20,000 Amigas in use in Hungary, and that his magazine sells about 1,000 copies a month. The issues are 60 pages long, nearly all of which are editorial, black and white (not that there is anything wrong with that!) and full of reviews, news and tutorial articles on C, Modula-2, Basic and assembly language programming.

After the communists fell from power, Bordas tells us, most of Hungary's industry found itself in dire straits – except, that is, for the computer sector. As well as being used in business and commerce, computers are also very popular in the entertainment sector.

Unfortunately, there is not enough in the way of quality literature to support this popularity, which is where *Amiga Magazin* comes in. It has been going since December, and looks set to grow bigger and better… If you're interested, you can contact Bordas Bence at *Amiga Magazin*, 1075 Budapest, Tanacs krt. 5/c, Hungary.

BUG FIXES

Those of you entering and running the VU-Bars program printed in last month's AMOS column may have noticed a distinct lack in the display department. This is because a set of sprite definitions are missing. Anyone wanting a copy of these definitions can get it either by downloading the file VUSPR.abk from the amos/files conference on the CIX bulletin board, or by sending a disk with a stamped addressed return Jiffy bag to: OOPS AMOS, AMOS Column, *Amiga Shopper*, 30 Monmouth Street, Bath, Avon BA1 2BW.

We also managed to get a few phone numbers wrong last month. Alan Morris, of the Bury St Edmunds branch of ICPUG, can actually be contacted on ☎ 0359 51446. Commodore UK (oops!) is on ☎ 0628 770088. Industrial Might & Logic, UK distributor of *AmigaTEX*, is on ☎ 0273 621393; the company would like to point out that it offers its own UK-based support service for *TEX* users, and will supply a free demo of the program to anyone who writes to (not phones) them at: Industrial Might & Logic, 58 Cobden Road, Brighton, East Sussex BN2 2TJ.

In July's issue, the *A-Gene* program, reviewed in the PD Column, was said to be written in AMOS. Mike Simpson, the program's author, informs us that it is in fact written in GFA Basic. He points this out because GFA requires any programs written with its Basic to acknowledge that fact.

Finally, contrary to what was stated in last month's Graphics Column, NewTek's Video Toaster is not compatible with the Amiga 3000.

Reserved judgement

Members of Special Reserve, the software discount club, will be receiving a new bi-monthly magazine to complement NRG, the glossy catalogue. The new mag is called *XS NRG* and is filled with games reviews; amongst this lot is a page on serious software.

Quite why anyone would wish to read reviews of games written by the people who are selling them, particularly when the lowest scoring game in the first issue achieved 76 per cent, remains something of a mystery. However, if you're interested, Special Reserve is on ☎ 0279 600204.

DIARY DATES

August 21-28: Computer Animation Competition and Exhibition. Amiga Centre Scotland, Edinburgh. ☎ 031- 557 4242.

September 5: Next issue of *Amiga Shopper* at your newsagent.

September 5-8: European Computer Entertainment Software Show. Earls Court, London. EMAP ☎ 071-404 4844.

September 13-15: Leeds Computer Extravaganza. New Exhibition Centre, Leeds University. Capital North ☎ 0532 677657.

October 29-31: Image Processing '91. National Exhibition Centre, Birmingham. Blenheim Online ☎ 081-868 4466.

November 5-7: Computer Graphics '91. Alexandra Palace, London. Blenheim Online ☎ 081-868 4466

November 15-17: *Amiga Format* presents The World of Commodore. Earls Court 2, London. For details ☎ 0462 420785.

December 5-8: Computer Shopper Show. Wembley Exhibition Halls, London. Cape Cowley Associates ☎ 061-480 9811.

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Talking Shop

This month readers get angry about the lack of DTP support for the Amiga, and get tuned in to a worldwide news network! If you have something interesting to say, write to the editor and win £5 if we print it



Generous offer

I make the following offer to anyone interested – send me two blank disks plus return postage and I will return a Workbench replacement guaranteed to assist the beginner. It has taken many months to put together using available software.

For any sceptics, all I ask for myself is a disk, and if you enjoy using it pay the shareware authors. This will mean that they will update the software regularly.

The disk is produced for beginners as I am not a programmer, merely an avid user.

James Abram
44 Virginia Road
Albrighton
Wolverhampton
West Midlands
WV7 3NP

Searching for words

I have a 1Mb Amiga with external floppy and a Panasonic KX-P 1124 printer. Like many printers, the printer fonts are excellent and it can do proportional spacing. I need a word processor that allows me to take full advantage of these features. Graphic fonts are rough and very slow. The *Home Office Kit* with *Kindwords*, *Maxiplan*, *Pagesetter*, *Infofile* and a host of fonts and clip art has been great fun, and excellent value, but I now want something more professional in output appearance.

For the past six months I have been trying to find a WP that is better than *Kindwords*. I have had, or tried, *Scribble*, *The Works*, *Excellence* and, thanks to *Format*, *Wordworth*. Still *Kindwords* is my first choice – its spelling checker loads into memory and is fast. *Excellence* puts the printer into proportional mode for you, but does not show it on the screen, and loses all your tabs. Even worse, it cannot mix graphic and printer fonts.

It takes time to find the limitations of these packages, the sales staff in my local shops do not know the detail of the packages they sell and the reviews I have read concentrate on graphics import.

Is there a word processor out there which will suit my needs?

Ian Clark
Reading
Berks

Yes, there probably is. There are many Amiga word processors and explaining the virtues and faults of each is way beyond the scope of the letters page. In fact it would take a huge, in-depth article to do the subject justice; and what do you know, we've got just such an article coming up next month. Now there's a spooky coincidence.

Hooked on adventure

Middle aged and addicted to adventure games, I haven't had the patience to grind my way through the Amiga manual. I am now hooked on your magazine and find myself learning for the fun of it.

E Richards
Eastbourne
East Sussex

Thanks for sharing that with us, Mr Richards.

Arresting warranty

I am writing to query an advertisement that has appeared in *Amiga Shopper*. The Digicom advert states that using any 0.5-meg expansion card other than Commodore's (very expensive) version would invalidate the warranty. Surely not! I thought that removing the cover from my machine would achieve this – not merely plugging in someone else's expansion card.

I bought my 0.5-meg expansion from Power Computing, and wasn't told by them that this would invalidate the warranty.

I feel that you should investigate this and if necessary correct it (hold a

continued on page 14

Prices up down under

I am writing to congratulate you on your new magazine *Amiga Shopper*. It is certainly a welcome publication and seems to admirably cover the areas left so obviously alone by other Amiga publications.

But I doubt if I could afford to purchase it at all at the subscription rate. Let's assume the magazine is to be sold for say £1.20 or £14.40 for the year's subscription. We in Australia could expect to pay something like £60 for the same article – £5 per copy.

This seems excessive and when you add on the bank fees (A$6) for currency conversion to Sterling, the cost of the subscription would then be around A$150. This translates into A$12.50 per issue, and yet *Amiga Format* plus its cover disk retails over here for A$11 per issue – A$2.50 cheaper.

Could you please have a look at your pricing to Australia?

Mick Gooch
Queensland
Australia

I was browsing through a newsagent's computer magazine section and saw *Amiga Shopper*. The price was A$3.40. What really sold me, however, was the down to earth promise of more meat, no glossies and no games reviews. Finally, I thought, a magazine with serious use in mind.

I read *Amiga Shopper* from cover to cover. Very well done indeed. I immediately thought of subscribing. Then I saw the foreign subscription fee! I would like to suggest that you offer *Amiga Shopper* by surface mail to foreigners. Actually, I would like to invite you to reply personally to this letter with costings for surface mail. In exchange for this favour, I will present *Amiga Shopper* to the Melbourne Amiga Users Group (the biggest Amiga Users Group in Oz, with over 1,000 members). Think of the subscribers you would get. Can you be bothered with one little Aussie in the Antipodes?

Santo Greco
Victoria
Australia

Your wish is my cliché. I've had a word with our subscriptions department and they are more than happy to offer a surface mail rate. There is a caveat, however. The Royal Mail can't (or won't) guarantee that surface mail magazines will get there before they are due on the streets. If you are prepared to take the risk, surface subs cost £22.42 as opposed to £51.98 for the air mail rate. Full details of the new rates are on page 62.

continued from page 13

public enquiry, a couple of rallies, sit-ins, riots, water cannons, Rotweillers etc etc). Seriously, though, I would be interested in your opinion on this.

Phil Hill
Bristol
Avon

Don't worry, your Power Computing RAM expansion won't affect your warranty. There seems to be some confusion on this point, at least at Commodore. The people at Digicom tell me that they have known of many cases of machines being returned by Commodore's repair centre with the message that they can't be fixed under warranty because they have a RAM upgrade fitted. On the other hand, the people at Commodore's HQ say that there is no problem with these third-party devices, as long as you don't have to open the case to fit them. The solution is simple: if your Amiga dies, remove the RAM expansion card before sending it back to Commodore for repair.

Michael Fish Disks

When I first got the Amiga bug I was at a loss as to what to do, but I did have a load of radio equipment that was just aching for a friend to talk to. So with some basic software, and some more very expensive hardware, I connected to the packet radio network, which is just like a modem really, only free. Well not quite, but no big telephone bills. All it cost me was about £200 for the radio transceiver, £300 for the radio modem and £12 a year for my amateur radio licence.

Packet? What's that? Well it's like the system people use on the telephone but it has slightly different protocols that are designed for use on a radio network where you can only transmit or receive at any one time (called 'simplex'). On the telephone you can transmit and receive at the same time ('duplex'). You can access bulletin boards or talk live on the air to other radio amateurs who hopefully share some of your interests.

There's more. You see the radio modem does a little bit more than most modems, it also decodes Packet, Morse, ASCII, Baudot, RTTY, Amtor, Navtex and Tor – a whole shooting match of different ways of transmitting data around the world using radio and computers.

I can only guess that these outdated modes will be way behind most modern news-gathering services, but to some of the so-called Third World countries this is the only way to communicate over vast distances – and that's the interesting bit. News? I get news until it's coming out of my ears. Up to date? Most of the time I've got tomorrow's news today.

Not only news is available, Navtex/Amtor is used live on the ocean waves by lots of shipping companies to communicate in a very reliable error checking mode.

But there's more, I could go on at length about each and every mode mentioned above but my favourite is Fax. Fax? Yes Fax. Not the fax you've got in your office, but the Fax that the press still uses to transmit pictures all over the world. Pictures that are sometimes too horrible ever to be used in newspapers or on TV. And not just pictures for the papers – you can get weather satellite pictures, weather charts and even ice flow charts for the polar regions!

J F Stewart
Skelmersdale
Lancashire

Fascinating stuff. Does anyone else out there do anything with the Amiga and amateur radio? Please write in, and we'll put together a feature on Amigas on the airwaves.



Find out in advance that it's going to rain all summer with the packet radio network.

Sucking up

I seem to remember reading that one of your readers wanted a vacuum cleaner for his computer. Well I've found something called a Microvac, and at only £8.95 it's damn good value for money.

I might buy one, and I've enclosed an order form for if you want to check it out too. (Although I expect you'll wangle some sly deal with the manufacturer to get a couple of free ones, only for testing purposes you understand.)

Perhaps the other readers would be interested. Perhaps you could wangle a sly deal for us all?

Phil Hill
Bristol
Avon

What, you again? Have you nothing better to do? Oh well. I don't know where you get the idea that we can wangle these amazing deals. The only perks you get in this job are T-shirts with adolescent slogans on them and as many floppy disks as you can eat.

As for the mini-vacuum cleaner, it's from The Innovations Report on 0793 610870, reference LD268A.

Don't tell the truth!

Re Ron Cavedasci's letter last month, "Desktop Duel". How on earth could you publish such a letter? How could you allow someone to even hint at the truth in your hallowed columns? Do you wanna reduce us to gibbering wrecks, cause divorces and suicides? Can't we just keep our heads in the sand?

Of course Ron is right – the Amiga DTP, structured graphics and typesetting software are still primitive when stood alongside Quark *XPress*, Adobe *Illustrator* and *Typesetter*.

Where are the forced justification, text runaround and irregular objects, radial and graduated fills for text and graphics and multiple documents – if I go on I'll fill the whole page! The Amiga's 30 or so PostScript-compatible typefaces (fonts to the uninitiated) can't hold a candle to the 300 available to Mac users. I too am heartily sick of turning away work – or worse, sending it to someone who has a Mac – because a simple typeface is not available.

But the problems don't end there. It is easy (once you've done it a few dozen times and got the settings right for the Linotronic) to send a document to disk as an Encapsulated Postscript File (EPSF), copy it over to an MS-DOS formatted disk and bung it off to a bureau. You can even include downloaded PS fonts (and it **is** possible with *PPage* 1.3, despite *Amiga Shopper* opinions to the contrary!). But should your PS file cause the Linotron to freeze up, the bureau might refuse to accept work from you ever again. Remember, you have been warned!

Wouldn't it be simple if we had a bureau with Amiga compatibility? OK, OK, I have seen the adverts too – but it has taken them from March 18th to June 9th to reply to my enquiries. And they still haven't sent me a list of available typefaces – nor will they tell me if they want EPSF or straight PostScript files on the disk. If I had been reliant on the output, I'd have been out of business by now.

Ron's letter is very reminiscent of a letter published in an Australian magazine just two months ago – so it's a world wide problem. I'll give him the same answer that an Australian reader gave. Unless we get Amiga versions of Quark, the Adobe programs and a full range of typefaces, buy a Mac!

Ed Attewell
Colchester
Essex

Unfortunately you are, broadly speaking, right. In fact you are righter than you think. You mention 300 Mac PostScript fonts, well I have a CD-ROM in front of me with 2,500 on it! Fortunately on that score at least there seems to be a solution: a program called MyFont, from Canadian company Mirror Image, can convert Mac format fonts to Amiga ones. We haven't seen this program yet, and we'll report back when we do. In the meantime you can contact the company on 010 1 416 495 7469.

Dangerous doctoring

Oh dear, oh dear, oh dear, oh dear, oh dear, oh dear. You've probably guessed by now that I'm referring to "Thing the eighth" in your "Ten things..." section of Amiga Answers.

You suggested that if a message comes up saying that the disk is NDOS, you should use *Diskdoctor* on it. Not so: if the disk is a game disk, *Diskdoctor* will completely ruin it.

If Workbench tells you that the recently inserted disk is NDOS, try it out. If it works, leave well alone. If it's a game, leave well alone. Just because the standard filing system doesn't recognise the disk doesn't mean that it's bad.

Diskdoctor is a very useful and good program, but dangerous. I had

a nasty experience with it myself when my Amiga was a week old, just over a year ago (don't they look cute when they're young?). I had a corrupt game disk, so I decided to let *Diskdoctor* try and fix it.

Being inexperienced (and twelve) I went on the CLI in the System drawer. I typed 'Diskdoctor df0:' and pressed [Return]. The computer prompted me to put the disk on non-protect. I did. Oh dear. I did get my money back from the game, but it left me with the notion that *Diskdoctor* is for the more knowledgeable of us. And that is wisdom for you.

Mark Beanland
Manchester

You are by no means the only person who has killed valuable software with a virus killer. I've done it myself and I didn't even have an excuse ("I was only 26 at the time" doesn't have the same ring to it somehow).

Inquisitive person

Since I'm a DTP freak, I would really like to know how our favourite magazine is made, on what computers, with which programs. Tell me, tell me, please!

Roger Popken
Stadskanall
Holland

Well I hope it won't be too much of a disappointment to you but we don't use Amigas. That's not because they can't do it, but we have 15 other magazines in the same company which are about different computers, and the chaos which would result from us all working on different computers would be, er, chaotic. So we use Macs; a IIsi, a II, an LC and a Classic to be precise. They run Quark XPress for design, Microsoft Word for writing, Aldus FreeHand for drawing and Adobe Photoshop for editing Amiga images. The whole lot is networked together with a really neat LocalTalk/Ethernet system which uses a laser beam to transmit information between buildings half a mile apart. And we use a Scangraphic imagesetter for direct-to-film output.

Beware the rich kids

Hmmm. I've managed to read through most of the latest issue and there is something about the way *Amiga Shopper* is going that I don't like very much. There is far too much space being given to millionaire rich kid/professional hardware/software that 99 per cent of the readership won't even see, let alone buy. A page here and there (and there's no doubt it's well written) would be OK, and last issue wasn't too bad, but I don't like elitist articles as they're for a specialist reader who wouldn't need *Amiga Shopper* to know of its existence in the first place.

Kevin
AKA The Orange Hedgehog

We're certainly not trying to be elitist. People buy these expensive pieces of kit; if they didn't the companies which make them wouldn't be in business. And the people who buy them are our readers as much as anyone else. But don't worry, we have our feet nailed firmly to the ground – expect to see features on budget software coming soon.

Strapped student

Why is it that serious software for the Amiga is so expensive – I understand that it is aimed at professional users, and most look for a high price as an indication of quality. But is this really fair on students? Most of us are forced towards the PC from day one of the course. I have been a user of the Amiga for about four years now,

continued on page 16

The perils of programming

I like the C project that you guys have started, and I hope it continues in the excellent style that it has started in. The only thing is that maybe a beginners' introduction to C might be a good idea, not so much 'type in the code and this super bitmap will scroll around' but maybe more to do with pointers and the like.

I am sure that many C programmers on the Amiga have migrated to this language from Basic, and an introduction to the use of these extremely useful data objects would be useful. Maybe also an introduction to linked lists and how to use them, as I have not seen many Basic programs that use them.

Iain Colledge
Via CIX

In issue 3 you announced the start of a new series of C programming tutorials – the only catch being that you have to able to program in C to understand them! Is a series of beginners' tutorials in C really impossible to write? I would suggest that ignoring the majority of potential readers who have probably used their computer for games/Basic but would like to learn more about the serious side of their Amiga will only restrict circulation.

All too often in computing magazines, articles either superficially skate over the surface of a topic or go immediately into such depth that the beginner is lost after reading the first line.

S J Pilling
Preswick
Manchester

If you would allow me to be so bold, I would like to make some suggestions concerning your magazine's future direction, particularly in the treatment of computer programming and languages.

It appears thus far that you have, in common with most of the other magazines, chosen to concentrate on C for your tutorials and examples and to omit issues of program design.

Your statement that C is the most widely used language on the Amiga is certainly true if you include games, but much of the 'serious' software for the Amiga is written in Modula-2 – and for very good reasons.

C is ideal for 'quick and dirty' hacking where there is no emphasis on reliability or maintainability (for instance when writing games) but has a number of major shortcomings that limit its effectiveness otherwise. Whilst these aspects of the language are no problem for pogramming experts, and have not prevented its widespread use, they do imply that C is not an ideal language in which to start programming.

Comparing C with Modula-2 : much C syntax relies on special characters and symbols, for example to delimit loops, whereas the equivalent Modula-2 representation is a meaningful English word. To someone unfamiliar with C, your examples are going to be unintelligible. Modula-2 code, on the other hand, can be easily read and understood by anyone.

The C language rules – and therefore the compilers – let you get away with the most appaling and fundamental mistakes (for example mixing variable types, setting values out of range and so on) and are thus going to put the novice through a nightmare cycle of debugging, correcting, re-compiling, running and debugging again. Any Modula-2 compiler will point out these errors to a novice in an explicit fashion and ensure that they are corrected before compilation can be completed.

The structure of Modula-2 encourages, if not enforces, a structured and thought-out approach to the whole area of program design.

Dave Pellatt
Brockenhurst
Hants

Your article in the June issue, interesting though it was, claimed (as did the front cover) somewhat more than it delivered. The article covered Basic, Assembler, C, Pascal, Modula-2, Logo and DOS. I note that page 76 of the June issue has an advertisement for Calco Software offering APL 68000, albeit at a high price, while on page 120 Postal PD offers, *inter alia*, Forth and Lisp. All these languages are capable of calculating factorials (rather boring in APL, which has it as a built in operator). Will Cliff Ramshaw be dealing with any of them later? I would be especially interested in reviews of the PD Pascal and Forth compilers.

K C Moore
Reading
Berks

Our programming pieces seem to be generating a good deal of interest. To take these points one by one. A 'moving from Basic to C' tutorial sounds like an excellent idea, and will go on to my Things To Do list. The superficial vs. expert divide is a tricky thing to get right; we do our best with the combination of beginners' sections and Jargon Busters with a more in-depth article. I'm sorry if you don't think we're getting the balance right yet.

When it comes to Modula-2, I'm sure you're right that it is an excellent language to program in. I'm just not quite sure how many people are interested. So I'll make you an offer – if 20 people write in and ask for a Modula-2 tutorial then I'll arrange one. You can't say fairer than that, now can you?

Finally, starting soon a 'language of the month' column, co-ordinated by our very own Cliff Ramshaw, will take a look at the more esoteric languages which are available. To help with that I'd be grateful if any of our readers who have made use of the public domain versions of these languages would write and tell me of their experiences, so we can pass on the information.

continued from page 15

from a 500 to a 2000, and so have built up quite a nice collection of hardware and software. However, to take my college programs back to the Amiga requires standard compilers – *Lattice C* for example (or is it SAS C now?) on the Amiga. These are available, at a price.

The point is that I am aware of companies such as Apple offering considerable discounts to students on computer courses, and IBM doing similar deals – I was offered a VGA 386 PC with *Turbo Pascal* and Microsoft *Word* for less than the cost of an ordinary B2000 with a hard disk. I went for the Amiga, and to be honest I have regretted it.

If Commodore wants the Amiga to make serious tracks into business and out of the home, then surely the company ought to make it the number one machine for students to be trained on. There is no point in a company buying A3000s when all its recruits are happier with MS-DOS and Microsoft Windows. And no college is going to use Amigas, no matter how attractive Commodore makes it for them, when its students can get a better deal with PCs.

Richard Speed
Haywards Heath
West Sussex

Would there be any takers if Commodore did offer a special deal? Write in and let me know if you are a student who would rather use an Amiga than a PC.

Jargon busted

Like Rex P Macey (*Amiga Shopper* issue 3), I too am floored by all the jargon, and to date I have not found a book or magazine that fully explains it all. I have an Amiga A500, and inspite of carefully following the User's Manual I frequently get "unknown command", and there I am stuck. Our local computer shop mentions training in their window, but on making enquiries they were not very helpful.

The nearest evening classes are some distance away, and are more geared for professional students. I am retired and at my age learning something new does not come easy. However I will not give up, and I look forward to your future articles for dunces like me!

Reg Holland
Westbury
Wiltshire

Hope you find them helpful Reg. By the way, if you did make the trip to your nearest evening classes, you'd find one in Bath taught by one of our very own writers at Future, then you could get the information straight from the horse's mouth!

What are viruses?

Everywhere, there are references to viruses, and anybody buying a new computer can hardly fail to be worried about this problem. It would be really useful to have a comprehensive article to answer questions like:

- How do they work?
- Where am I most likely to catch them from?
- Are there any precautions I can take to reduce the chances of being infected?
- Can they live on data file disks, or is it just program disks?
- How safe is PD software?

Come to that, can we assume that major programs like Workbench are virus free or is that being naïve?

- How effective are anti-virus utilities, and which ones are best?

I'm sure a lot of people would very much appreciate something along these lines and hope you can provide something.

K Granger
Dalston
London

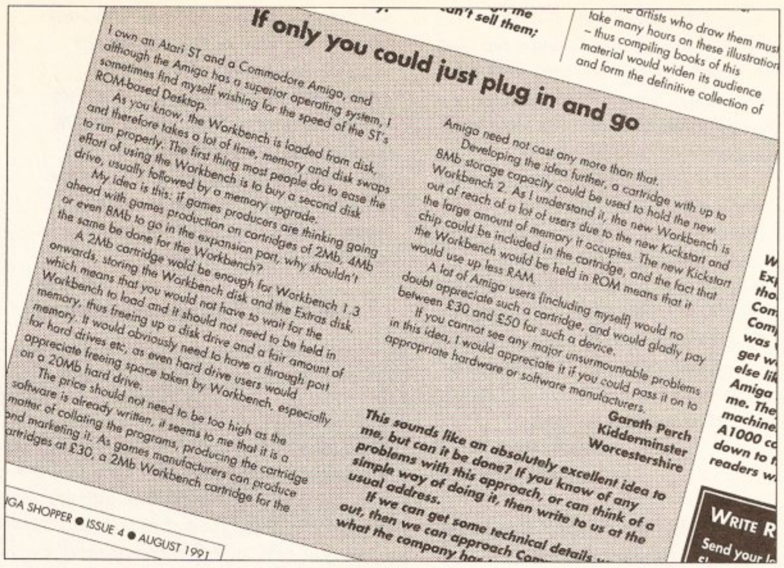
Can do, will do. Look out in the next couple of issues for just such an article.

Changing colours

Gareth Perch wrote about the possibility of putting Workbench on to a cartridge. One of the major advantages of having a software-based Workbench is that every user can tailor it to their own needs and preferences (pun intended). Imagine what it would be like if we all had to look at the same colours icons, pointers and so on every time we booted up. My own startup-sequence bears no resemblance whatever to Commodore's original as I have a number of PD programs that I like up and running when I boot into Workbench. The best way to have a faster-loading Workbench (memory permitting) is to set up a small RAD: and load most of the commonly used commands into it. Machines fitted with Kickstart 1.3 can boot from RAD:.

Jim Campey
Brentford
Middlesex

I must say that I don't really find the idea of the icons always looking the same from day to day that disturbing, Jim. Besides, the idea was to have Workbench in a cartridge as an option, not built-in to the hardware.



If only you could just plug in and go

I own an Atari ST and a Commodore Amiga, and although the Amiga has a superior operating system, I sometimes find myself wishing for the speed of the ST's ROM-based Desktop.

As you know, the Workbench is loaded from disk, and therefore takes a lot of time, memory and disk swaps to run properly. The first thing most people do to ease the effort of using the Workbench is to buy a second disk drive, usually followed by a memory upgrade.

My idea is this: if games producers are thinking going ahead with games production on cartridges of 2Mb, 4Mb or even 8Mb to go in the expansion port, why shouldn't the same be done for the Workbench?

A 2Mb cartridge wold be enough for Workbench 1.3 onwards, storing the Workbench disk and the Extras disk, which means that you would not have to wait for the Workbench to load and it should not need to be held in memory, thus freeing up a disk drive and a fair amount of memory. It would obviously need to have a through port for hard drives etc, as even hard drive users would appreciate freeing space taken by Workbench, especially on a 20Mb hard drive.

The price should not need to be too high as the software is already written, it seems to me that it is a matter of collating the programs, producing the cartridge and marketing it. As games manufacturers can produce cartridges at £30, a 2Mb Workbench cartridge for the Amiga need not cost any more than that.

Developing the idea further, a cartridge with up to 8Mb storage capacity could be used to hold the new Workbench 2. As I understand it, the new Workbench is out of reach of a lot of users due to the new Kickstart and the large amount of memory it occupies. The new Kickstart chip could be included in the cartridge, and the fact that the Workbench would be held in ROM means that it would use up less RAM.

A lot of Amiga users (including myself) would no doubt appreciate such a cartridge, and would gladly pay between £30 and £50 for such a device.

If you cannot see any major unsurmountable problems in this idea, I would appreciate it if you could pass it on to appropriate hardware or software manufacturers.

Gareth Perch
Kidderminster
Worcestershire

This sounds like an absolutely excellent idea to me, but can it be done? If you know of any problems with this approach, or can think of a simple way of doing it, then write to us at the usual address.

If we can get some technical details worked out, then we can approach Commodore and see what the company has to say.

AMIGA SHOPPER ● ISSUE 4 ● AUGUST 1991

Last month's letter about putting the Workbench into ROM has provoked a flood of responses. Write in and let us know what you think.

Enterprise initiative

With reference to "If only you could just plug in and go" in issue four. Mr Perch puts a point forward that our founder members and myself have been discussing for some time. I would like to point out that it has been done. Do you remember the Elan Enterprise? An 8-bit computer which came in 64K and 128K versions, it was very sophisticted for its time, offering stereo sound and, you guessed it, Basic on a cartridge. It was designed in this way so that other languages could be put on other cartridges. My point is, if it can be done with an old 8-bitter why not with our great Amiga?

S Booth
Pennine Amiga Club
Keighley

The Enterprise wasn't the only computer to take add-ons in this way. BBC micro users will know that you can install software permanently by fitting ROMs, or in the case of the Master, slotting in a cartridge. And more recently the SAM Coupé has its Basic in a detachable cartridge. We've had a number of letters on this subject, and the discussion will continue next month.

Comms compliments

Comms has always been a bit of a taboo subject, in that it appeared that the people involved were either wealthy and experienced computer professionals or master criminals who spent the majority of their nights hacking into other people's bank accounts. If you were a home user with less than £2000-worth of PC, you had no chance.

My first venture into comms was when Compunet first started. I was only using a clapped out C64 and a CBM modem. Well it was interesting to say the least, but there were relatively few users, and at the end of the day it's the users who make or break a BBS system.

The point I'm trying to make is that comms will become more and more popular as people tire of playing games and seek to do something more adventurous. But it's only with the help of magazines like *Amiga Shopper* that this'll ever happen, so keep up the good work!

Simon Cansick
Grangemouth
Falkirk

Scot free

Too many computer shows? Poor attendance? There is a very simple answer – put a few up here. We Scots would be very pleased to host a show.

David Lambert
Glasgow

No sooner said than done, David. Apparently the All Formats Computer Fair is going national, with shows in Leeds, Birmingham, London and Glasgow (on September 22nd). For details, call the Fair Newsline on 0898 299389. AS

Send your letters to: Stuart Anderton, *Amiga Shopper*, 30 Monmouth Street, Bath BA1 2BW. Or alternatively send them by e-mail to amshopper@cix.compulink.co.uk. Remember that short and sweet letters are much more likely to be printed. All letters received will be considered for publication unless you specifically state otherwise. We reserve the right to edit letters for size and literacy.

AMIGA ANSWERS

Send your questions to: Amiga Answers, *Amiga Shopper*, 30 Monmouth Street, Bath BA1 2BW

We've assembled the best panel of Amiga experts in the country and every month they'll be putting their heads together to help solve your problems. Be they trivial or be they techie, Amiga* Shopper *has got all the answers

Q

C manual on a disk

I purchased Fish disks 456 and 457, containing the *Complete C Manual*. I unpacked them on to four disks but when I try to run the program by clicking on either docs or icons I get the prompt 'insert Editor'. It would be great if you could tell me what disk I need to get to run this program.

R Hammond
Hodge Lea
Milton Keynes

A

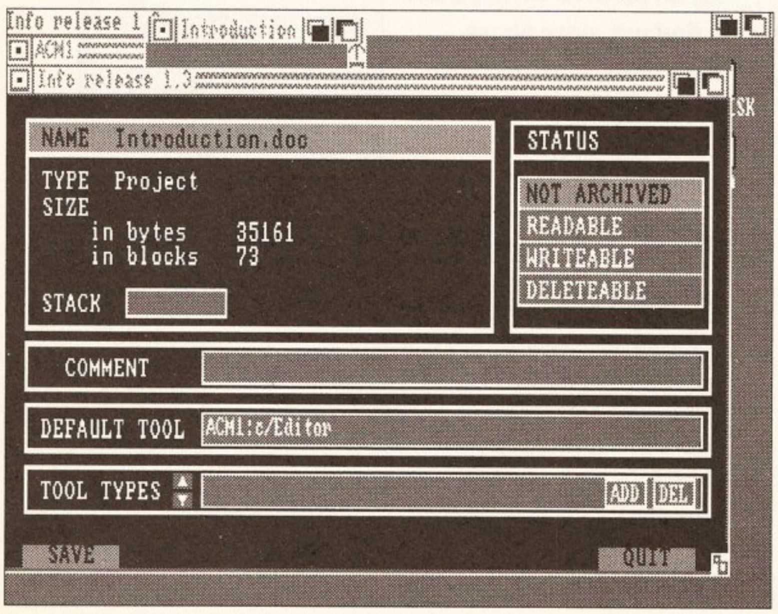
Thankfully, you don't have to buy any more disks – the program you need is already there. Unfortunately, AmigaDOS is rather confused as to where to find it. The *C Manual* primarily consists of various document files, and to read these some sort of editor is required. AmigaDOS is currently searching for an editor called 'Editor' which it thinks lives on a disk also called 'Editor'. All you have to do is tell it where the editor really is.

In fact, it is inside the C directory on disk one of the uncompacted set. To get the document files to realise this, you have to do the following: Click once on the document icon. Go to the Workbench menu at the top of the screen and select Info. Inside a box marked 'Default Tool' will be the words 'EDITOR:Editor'. Click inside this box and edit the line so that it reads: ACM1:c/Editor. Now click on the Save gadget.

The same procedure has to be repeated for each of the documents on the disk. As for the other disks, each of these may have their own editor. You can check this by opening up the Shell and getting a listing of the C directory. For disk number two, for instance, you should type the following:

```
dir ACM2:c
```

If a file called 'Editor' is present, then the process outlined above should be repeated for each of the documents on this disk, but replacing the line 'ACM1:c/Editor' with 'ACM2:c/Editor', and similarly for all of the other disks. If the file is not present on any but the first disk, you can either copy it across to each of the disks in turn, or set up each of the documents as initially described – this approach means that you will have to insert the first disk before being able to read any of the documents on the other disks. **CR**



Changing a project's tool with Info is easy – but the manual doesn't help.

Q

Newsletter nuances

I have an A500 with a 512K expansion and a Star LC10 colour printer. I would like to print a colour newsletter for my team of distributors, and to this end I have bought *KindWords 2* and *Deluxe Paint 2*. I have been successful in creating colour graphics, storing them and printing them, but when trying to merge them with text in *KindWords* the results are rather disappointing. Have you any tips?

Also, I would like to start a database of my customers. I need to store around 600 name and address details per week. The total number would be 20,000. Is this possible?

Michael Coyne
Sale
Cheshire

A

If you are after sophisticated graphics and text (text flowing around the borders of pictures and so forth) you are going to need a new word processor. *KindWords* is just not up to that sort of thing. You could either go for a high-end word processor, such as *Pen Pal* (£79.95 from Gordon Harwood Computers ☎ 0773 836781) or *Wordworth* (£129.95 from Digita International ☎ 0395 270273) which was reviewed in last month's issue. (We are examining a number of other word processors next month.) Alternatively, you might consider buying a desktop publishing program – but ask yourself if you need the extra features.

As for your database requirements, at the very least you are going to need an extra floppy drive, if not a hard drive, in order to store that amount of information. Some extra memory would probably not go amiss, either. There are a number of Amiga database packages on the market, including *Prodata* (£79.95 from Arnor ☎ 0733 68909) and *Superbase 4* (a more expensive option, at £411 from Precision Software ☎ 081-330 7166). Check out the review of *Superbase 4* in last month's and this month's issues. **CR**

> **LISTING BREAKS**
>
> **Because of the width of the magazine's columns, we occasionally have to break listings across two or more lines. Where this has occurred, and you should enter two or more lines without a [Return] between them, we have used the following symbol: ↵**

Q

Absolute beginner

The day I am dreading is fast approaching: my son's 13th birthday. He wants a new Amiga. I am sure I am not the only parent in this position – "Dad, the game will not load" or "Dad, how do I do this?".

Well, I thought I better try and find out before hand. What are snapshots and icons? what is meant by clicking on an icon? Will the information supplied be of help for one whose previous experience of computers was a pocket calculator?

A Rance
Sidcup
Kent

A

Don't, as the saying goes, panic. Although you may have read a lot of criticism of the manuals supplied with the Amiga, they are certainly not all bad. They do explain the basics,

such as clicking on icons, taking snapshots and so on. It is when you want to learn a little more than that that the manuals fall down – they go from approaching things from a complete beginner's standpoint to being aimed at someone with a good deal of previous knowledge.

There are many, many books on the market dealing with specialised areas of the Amiga: you really won't be able to choose one until you know which area you are interested in. For a general book on the Amiga that goes a little further than the manuals, you might like to look at *Get The Most Out Of Your Amiga* (ISBN 1 872666 02 7), written by the team which produces *Amiga Format*. It costs £9.95 and should be available from all good bookshops.

Also, watch out for next month's Amiga Answers, in which we will be starting a step-by-step explanation of all those things beginners really need to know. ***CR***

Q

Printer books

Do you know of any books that would help me get the best from my printer? I feel that I am not getting anything like the best results possible from my Star LC-10.

G Fendle
Basingstoke
Hants

A

Yes, *Amiga Printers Inside & Out* (ISBN 1 55755 087 5), by Ralf Ockenfelds, is full of handy tips for getting the most from your printer. It is published by Abacus and costs £29.95. The book also comes with a disk containing several handy programs to make printer operations that bit more straightforward. ***CR***

Q

No frills Amiga

Are there any companies out there that will supply just the basic Amiga 500 unit without the power pack and so forth? I'm sure there are a lot of other people who would be interested.

Steve Cross
Wildwood
Stafford

A

A quick phone around revealed that the following companies would be able to fix you up with something: Holbyte Computing (☎ 0727 56005), Best Prices (☎ 0903 700714), Trilogic (☎ 0274 691115), Turbosoft (☎ 0525 377974) and First Choice (☎ 0532 637988). You should be looking to pay in the region of £300. ***CR***

Q

Installing AMOS

I own an A500 and an A590 hard drive. If I install AMOS in a drawer on my hard drive it will not load (I suspect it can't access the main directories such as L:, C: and Libs:). I have had to install it on my root directory, which is now littered with ugly AMOS files. Is there any way I can keep AMOS in its own drawer, without having to copy the L:, C: and Libs: directories into the drawer?

Parwinder Sekhon

A

AMOS is quite happy to have all of its support files in a drawer on a hard disk. The program itself is stored in the root directory. There is a hard disk installation program that comes with AMOS on the Program disk. This can be run from the CLI by inserting the disk in df0: and typing:

```
cd AMOS:
AMOS1.2 INSTALL.AMOS
```

(Note that the manual for version 1.2 has a misprint, in that the line should begin with 'AMOS1.2' and not 'AMOS'.) This is all there is to it. The install program will create its own drawer and put everything necessary into it automatically.

If you are using the first release of AMOS, you will find the install program on the Extras Disk rather than the Program Disk, in which case it can be executed by typing:

```
AMOS Extras:INSTALL.AMOS
```

CR

Q

PC Emulation

I have been playing around with the PC to Amiga utilities on the Extras disk. I can copy files with no problems, but can only read ASCII files. Any attempt to load any other PC converted files results in the error 'cannot load XXX, file is not an object module'. How do I convert the file to an object module so that it runs on the Amiga?

The reason for this is that I have a few programs for the PC which are not available for the Amiga, and I would like to try them out.

JA Hedges
Greenford
Middlesex

A

These files cannot be converted for use on the Amiga. Programs created for the PC use an entirely different form of instructions from those that the Amiga understands. The only solution open to you is to buy a PC emulator. You can either get a software emulator, which will be cheap but slow, or a hardware emulator, which will be expensive and a bit faster. A new PC software

continued on page 21

WHATEVER YOUR PROBLEM WITH THE AMIGA, WE ARE HERE TO SOLVE IT

That's the task we have set ourselves in giving you the best possible support for your Amiga. We are confident that our experts can cope with anything you can throw at them. If they don't already know the answer to your problem, they will find it out. Read on for some of the typical, and obscure, problems you may encounter when trying to get the most out of your Amiga.

CONSULT *AMIGA SHOPPER*'S EXPERT PANEL

We are prepared to deal with any problem you have with the Amiga, from general enquiries about AmigaDOS or workbench, through questions about specific pieces of software and hardware, to advice on what you need to buy to do a particular task. If it's to do with the Amiga, we will help out. What we cannot do is offer this service over the telephone – **do not phone us with your enquiries**, but write or fax us at the address and number below.

We also cannot enter into personal correspondence – all enquiries will be dealt with in the pages of the magazine. This does mean a bit of a delay in solving your problem, but we will come up with an answer for you. You'll just have to be a little patient and wait for it to appear in print.

Send your questions to: Amiga Answers, *Amiga Shopper*, 30 Monmouth Street, Bath BA1 2BW. Fax: 0225 446019.

The *Amiga Answers* panel consists of all three consultant editors – Jeff Walker, Mark Smiddy and Phil South – and of course resident technical editor Cliff Ramshaw. We will also be calling on the services of all our other contributors, so you won't be able to catch us napping on any subject. Each panelist will be dealing with queries in their own specialist area and it would help us greatly if, when writing, you label your query envelope with the name of the expert who can solve your particular problem. Below is a list of their areas of expertise. It's a list that we will add to and update every month so you will know who to write to about any subjects not mentioned here.

Gary Whiteley – Video.
Stewart Russell – Comms, CAD.
Paul Overaa – programming, music.
Mick Draycott – hardware, programming, MIDI.
Jeff Walker – desktop publishing, programming.
Mark Smiddy – AmigaDOS, business, CDTV, hardware projects, hard and floppy disk drives.
Phil South – public domain, graphics, AMOS.
Jolyon Ralph – programming, hardware.
Ian Wrigley – American sitcoms, maths.
Stuart Anderton – obscure bands and hi-fi.
Cliff Ramshaw – the really hard stuff that no-one else can answer.

If you think you have been ignored...

Don't panic, there could be several reasons why your question has not appeared this month:

- It did not reach us in time to be included this issue.
- The answer to your question is given as part of the answer to another published this month.
- You have not given us enough information in your letter to answer the question fully.

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emulator is available for $30 from Mark Tomlinson, 30 Kirner St., Christchurch 9, New Zealand. There are two hardware emulators for the A500: the Vortex ATonce card for £199 from Silica Shop (☎ 081-309 1111), and the KCS Powerboard for £234.99 from Bitcon Devices (☎ 091-490 1919). ***CR***

Q

Rotating cube reprise

I was very interested in the listing you gave in issue one to rotate a 3D cube on the screen. Because it was done in Basic, I decided to try and convert it into AMOS Basic.

I keep getting a 'division by zero' error. I've tried changing the 'ZSCALE=0.002' to other values, such as 1,2,3,4. When I run the program after doing so, although it runs, instead of a cube I get a flashing dot. Please help!

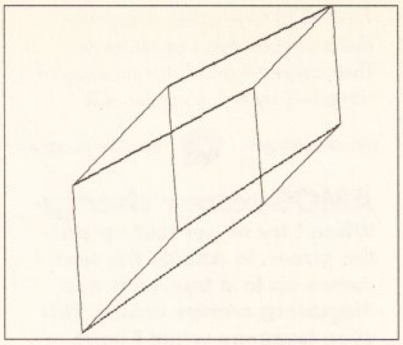
Paul Newsom

A

The main problem with the listing you enclosed was that all the variables you were using were integer variables. Therefore, setting ZSCALE to 0.002 had the effect of setting it to zero – hence the division by zero error. Real variables (ones that have fractional parts) can be used in AMOS by following the variable name with a hash sign.

Here is a working version of the 3D cube program in AMOS:

```
Screen Open 0,640,256,2,↵
Hires : Hide : Curs Off
Palette $0,$F00
Rem 3D box
Dim X#(16),Y#(16),Z#(16)
XSTART=320 : YSTART=100
ZSCALE#=0.002
XPOS=0 : YPOS=0 : ZPOS=0
Rem position in space of box
Rem now read in coordinates
Rem for cube shape
For I=1 To 16
Read X#(I),Y#(I),Z#(I)
Next I
Data -5,-5,-5,-5,-5,5,5,↵
-5,5,5,-5,-5,-5,-5,-5
Data -5,5,-5,-5,5,5,-5,-5,5,↵
-5,5,5,5,5,5
Data 5,-5,5,5,5,5,5,5,-5,5,↵
-5,-5,5,5,-5,-5,5,-5
Rem
Gosub BDRAW
DEG#=11.25
RAD#=DEG#*2*Pi#/360
SRES#=Sin(RAD#)
CRES#=Cos(RAD#)
Rem this speeds thing up by
Rem avoiding the need to
Rem continually re-calculate
```



Cliff's cube heads for the horizon.

```
Rem sins and cosines
Rem main loop for animation
For J=1 To 100
   Gosub ROTATE
   ZPOS=ZPOS+4
   XPOS=XPOS+Rnd(4)-2
   YPOS=YPOS+Rnd(2)-1
   Cls
   Gosub BDRAW
Next J
Goto FINISH
Rem rotate cube about centre
ROTATE:
For I=1 To 16
   TMP#=X#(I)*CRES#-
Y#(I)*SRES#

Y#(I)=X#(I)*SRES#+Y#(I)*CRES#
   X#(I)=TMP#
   TMP#=Y#(I)*CRES#-
Z#(I)*SRES#
   Z#=Y#(I)*SRES#+Z#(I)*CRES#
   Y#(I)=TMP#
Next I
Return
Rem Draw the cube
BDRAW:
XABS#=X#(1)+XPOS
YABS#=Y#(1)+YPOS
ZABS#=Z#(1)+ZPOS
Gosub PERSPECTIVE
XOLD=XSCR : YOLD=YSCR
For I=2 To 16
   XABS#=X#(I)+XPOS
   YABS#=Y#(I)+YPOS
   ZABS#=Z#(I)+ZPOS
   Gosub PERSPECTIVE
   Polyline XOLD,YOLD To↵
XSCR,YSCR
   XOLD=XSCR : YOLD=YSCR
Next I
Return
Rem alter coords according to
Rem distance into screen
PERSPECTIVE:
XSCR=XABS#/(ZABS#*ZSCALE#)
YSCR=YABS#/(ZABS#*ZSCALE#)
XSCR=XSCR+XSTART
YSCR=YSCR+YSTART
Return
Rem
FINISH:
Wait Key
Edit
```

As for creating filled 3D graphics, I'm afraid that requires rather a lot of hard sums. It certainly would not be feasible doing this in an interpreted language like AMOS. Have a look at this month's AMOS column for news of Europress' latest release, *AMOS 3D*, which comes with routines of this sort built in. ***CR***

Q

Through-port conflict

I have an A500 with 1Mb, an extra drive and Datel's Action Replay II cartridge. If I plugged a hard disk into my expansion port, would I still be able to use my Action Replay II? I know that some of the hard disks have a SCSI port. What is this? Are there any hard disks which have a through port I can plug my Action Replay into? Is it possible to make something so that I could plug both my Action Replay II and a hard disk into the expansion port at the same time?

Andrew Goodchild
Ipswich
Suffolk

A

Normally, you would not be able to plug your cartridge in after a hard disk was fitted, unless, as you say, you bought a hard disk with a through port. The 40Mb Supra 500XP (£489 from, amongst others, Surface ☎ 081-566 6677) is one such drive. Alternatively, the 20Mb Novia 20i hard disk (£387 from Power Computing ☎ 0234 840234) will fit inside your Amiga and leave your expansion slot free.

A SCSI (Small Computer Systems Interface) port is an industry standard connector which enables several hard drives to be connected together. It is not the same as the Amiga's expansion port.

Rather than making something to enable the simultaneous connection of a hard drive and your Action Replay cartridge to the expansion port, it would be easier to buy a drive that duplicated the port. ***CR***

Q

Installing Hyperbook

I have an A500 with a 0.5Mb upgrade. Perhaps you could help me with a quirk concerning *Hyperbook* on the cover disk of your sister magazine, *Amiga Format*. Every time I attempt to use it, I spend a good twenty minutes disk swapping to decompress it to another disk. As you can guess, I only have the one disk drive. Is this a fault or just an annoying fact that only an external drive will remedy?

David Taylor
Fenstanton
Cambridgeshire

A

It's an annoying fact that an external drive will remedy. Having said this, once you have decompressed the program to another disk, you should have no further to do so. Whenever you want to re-use *Hyperbook*, load it from this other disk and it should load in one go. ***CR***

Q

Pro sampling

I have heard on the 'grapevine' of the possibility that someone, somewhere, is developing a commercial 16-bit sampling expansion board for the Amiga. As I am considering adding a professional quality sampling facility to my MIDI setup, I would be grateful if you could dispel/confirm this rumour.

James Holloway
Amersham
Buckinghamshire

A

The rumour is true. SunRize, an American company, has manufactured the AD1016, a 16-bit sampling card for the A2000. It has eight times oversampling, digital filters, digital I/O for linking to a DAT or CD, MIDI and an SMPTE time code reader. It comes with its own software, *Studio 16*. A price is yet to be announced for it in this country, but HB Marketing will be distributing it. For more information you can call SunRize ☎ 010 1 408 3744962 or HB Marketing ☎ 0753 686000. ***CR***

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Corrupt A590

Several readers have written in with alternative solutions to the tip presented in issue three by Richard Hill for the problem of a corrupt A590 hard disk. These solutions involve the following operations: with the hard disk connected and switched on, put the A590 setup disk in df0: and wait until it boots. Reformat the drive using the HDToolbox utility. Finally, copy the information back to the hard disk from the backup floppies which you have, of course, wisely put by for just such an occasion.

Thanks to all those who wrote in pointing out this alternative soluton.

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Q

AMOS fractals

I have been wanting to write a fractal program for some time now after being inspired by the article on fractals in your sister magazine, *Amiga Format*. I have tried several times to write my own program using AMOS, but as yet I have had no success. I would be most grateful if you could show me how to do this.

I have looked for books on fractals and the only one I have been able to find is for the IBM with examples in C++. It is *Raytracing and Fractal programming in C++* by Roger T Stevens. If I bought C++ for the Amiga would I be able to use this book?

One last thing that has been puzzling me: what is the difference between *Lattice C++* and *Lattice C*?

Mark Harding
Rownhams
Southampton

A

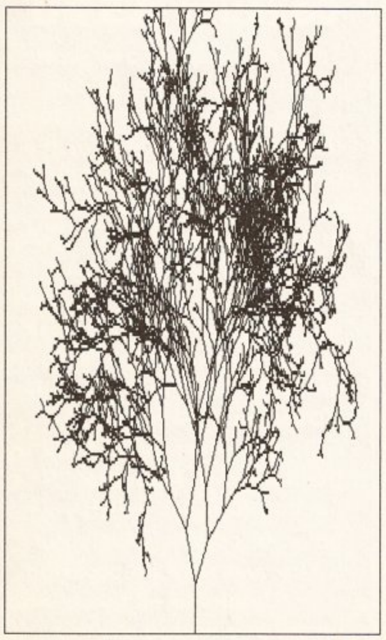
The underlying principle behind fractals is fairly straightforward: repeating the same process again and again at increasingly smaller scales. This is best achieved in a programming language by means of something called recursion.

The example program below will draw fractal trees. As you can see, it is very short, yet the results it produces are quite attractive (if I do say so myself). The important part of it is the procedure, TREE. It takes four parameters: the x and y coordinates describing the start of the branch, the length of the branch, and the angle of the branch (with zero degrees being a vertical line).

Having drawn a branch, the procedure then calls itself twice with a reduced branch length. Both of these calls have the x and y end point of the old branch included as parameters for the start point coordinates of the next branch; one call is made with a decreased angle, one with an increased an angle, thus creating a fork in the branch.

And finally, the procedure TREE needs some sort of check to stop it trying to draw branches forever. In this case, it stops once the branches are less than three pixels long. It should be easy for you to replace the TREE procedure with one to draw a different geometric figure, giving you a completely different fractal pattern. Hope the example is of help.

```
Screen Open
1,640,256,16,Hires : Hide
Curs Off
Cls 2
Ink 0
LIMIT=2
Degree
TREE[320,255,25,0]
Wait Key
Edit
Procedure
TREE[XSTART,YSTART,DIST,↵
THETA]
Shared LIMIT
X=DIST*Sin(THETA)+XSTART
Y=YSTART-DIST*Cos(THETA)
Draw XSTART,YSTART To X,Y
If DIST>LIMIT
   TREE[X,Y,DIST-↵
Rnd(5),THETA-Rnd(45)]
   TREE[X,Y,DIST-↵
Rnd(5),THETA+Rnd(45)]
End If
End Proc
```



A complex fractal pattern, created by a remarkably simple program.

If you were to buy C++ for the Amiga, I'm sure you could learn a lot from the book you suggest. However, all of the graphics commands would no doubt have to be changed to take account of the Amiga's own way of handling screens, windows, plotting and so forth. Also, the programs will need altering because of the difference in screen resolution and number of colours on screen between the PC and Amiga. Whether you buy the book or not really depends on how comfortable you feel about hacking through the examples.

Finally, the C compiler marketed by HiSoft is no longer called *Lattice C* but *SAS C*. C++ is actually a different language from C. It has many features in common with it, but is an object-oriented language. This means that rather than program statements, data becomes the most important component of a program. Most versions of C++ at the moment act like a pre-processor on the code. They convert it into C for subsequent compiling by a C compiler. ***CR***

Q

AMOS colour change

When I try to get text up on the screen in AMOS, the text comes up in a box with that disgusting orange colour. This even happens when I have used the Cls 16 or the Ink commands. This problem is really getting on my nerves as I am trying to write a puzzle game and this little thing keeps getting in my way. I would greatly appreciate your advice on how to get rid of the orange as I am only starting out in AMOS.

Daniel Morgan
Sidcup
Kent

A

You can change the background colour of text (that is, the colour of the small box surrounding any text printed by *AMOS*) by using the 'Paper' command. This is followed by a number referring to one of the colours possible for a given screen type. When *AMOS* first loads, there is a choice of sixteen colours, so the 'Paper' command is followed by a number between zero and fifteen. If, for instance, you wanted the background colour to be black, you would type:

```
Paper 0
```

If you want to turn the whole of the screen black, you would use Cls 16 as you said (or Cls 0). You would still have to use the 'Paper' command afterwards to stop text being printed with an orange background, though. Should you want to, you can change the colour of the text by means of the 'Pen' command, again followed by a number between zero and fifteen. ***CR***

Q

Virus killer peril

I bought my son Edward an Amiga 1500 for Christmas, and since then he has purchased various different games for it. He had one or two problems and we decided to get *The Virus Killer 3.0* by R G Pickles.

Edward put his disks through the *Virus Killer Terminator* and, unfortunately, he has terminated the boot codes on all his game disks and now they will not load. The games involved are: *Dungeon Master, Golden Axe, Kick Off, Kick Off 2, World Cup 90, Player Manager, Populous, Super Grand Prix Simulator, Xenon* and *Beyond Dark Castles*.

Could you advise me if there is any way to restore the boot codes to these disks, or have we made a very costly mistake?

John Hanks
Middle Barton
Oxford

A

I'm afraid you have made a costly mistake. The best I can suggest is to throw yourselves at the mercy of the various games publishers, send them your corrupted disks and ask politely if they will send you replacement copies. But bear in mind that they have no legal obligation to do this.

Commercial games invariably come on disks with custom bootblocks. Many virus killers, not recognising such bootblocks, will assume that a virus is present and suggest that it be erased. Doing this will render the game unplayable. Always be very wary of using a virus killer on games. ***CR***

Q

Peripheral posers

I intend to purchase an Amiga 1500, and I have a few questions about the monitors and printers available:

Does the Commodore 1084SD (hi-res) colour monitor display low and medium resolutions too? I used to have an ST, and that needed a multi-sync monitor to display them all.

Which is the better, the Commodore 1084SD or the Philips CM8833 Mk II?

Is the Star LC200 the colour version of the LC10, as I have read that you can upgrade the LC10 (mono) to colour for around £50?

I am thinking of getting either the Star LC200 or the Citizen Swift 9. Which printer is the better for the money?

Finally, what is the difference between a 9- and a 24-pin printer? Is it just the print quality or is it the speed?

M A Bold
Abergele
Clwyd

A

The 1084SD will display low and medium resolutions. However, when displaying the Amiga's highest resolution the picture will flicker

badly. This is not so much a problem of the monitor as of the Amiga. The only solution to this is to buy a multi-sync monitor and a flicker fixer card.

The Philips and Commodore monitors both have pretty much the same specification. The choice comes down to which you find more attractive and which you can get for the best price.

The LC10 is no longer in production; the Star LC200 is part of a new line of printers from Star. It is colour as standard – there is no black and white version.

Both the Star and the Citizen Swift 9 were reviewed in last month's Printers On Trial article. They both came in equal as being the best buys in the 9-pin range.

As well as producing better quality output, 24-pin printers are also faster. For more details of printers for the Amiga, check out last month's round up. **CR**

Q

HAM printing

Which is the best printer for the Amiga which will reproduce a HAM image? I was considering the HP PaintJet but was told that although the DeskJet has a 300dpi setting, the PaintJet has only 180dpi. Is there an affordable answer?

Stewart Thompson
Luton
Bedfordshire

A

You can dump a HAM screen to any printer that you have an Amiga printer driver for. But as you mentioned the HP PaintJet, I guess you mean in colour. Which rules out the HP DeskJet because this is a black-and-white printer.

Actually, it is possible to get colour output from the DeskJet by changing the ink cartridges and putting the page through the printer four times. It's a slightly fiddly operation which involves buying yellow, magenta, cyan and black ink cartridges and using *PageStream* to 'separate' the colour components of the picture. Programs like *DigiPaint* and *Photon Paint* are no use here – *PageStream* is the only program I know of that can send colour separations to an ink jet printer, which is what the DeskJet is.

The results of the above operation range from stunning to ho-hum. Basically, the more colours in your HAM screen, and the subtler the changes of tone, the 'muddier' the dump is going to be.

The same is largely true of the quality of screen dumps produced by the PaintJet. You don't need colour separations to get colour output here, the PaintJet printer driver (on your Extras disk) will mix the colours and do the job in one pass.

I know it sounds like a cop-out, but you really are asking an awful lot to get high-quality HAM colour output from even an expensive high-resolution PostScript device. Stick to a maximum of 32 colours and the PaintJet is probably the best colour printer in its price range. **JW**

Q

Which hand scanner?

I am in the market for a hand scanner. After looking through various computer magazines I found the following makes and models: Naksha Scanner, Golden Image Scanner, Power Scanner and the Geniscan 4500. I phoned a number of dealers up, but each gives me a different answer. Can you please recommend one. I have £200 to spend.

Reza Kish
Richmond
Surrey

A

Right, here's a quick Scanners Buyers Guide for you.

The Naksha (£186.83 ☎ 0925 56398), Pandaal (£179.95 ☎ 0234 855666) and Power (£179 ☎ 0234 843388) scanners all use the same software called Daatascan Professional. The Naksha can represent a maximum of 32 grey levels, the other two – which appear to use the exact same scanner head as well as the same software – can represent 64 grey levels.

The Geniscan (£149.99 from Datel Electronics ☎ 0782 744707) is the cheapest of the lot and produces the lowest quality results – although I've not yet seen the version 3 software, so I must reserve final judgement.

My recommendation has to be the Golden Image scanner (£149.95 ☎ 081-365 1102). It uses the same scanner head as the Power and Pandaal scanners (100-400 dpi, 64 grey levels) and comes with *Touch-Up*, the most powerful scanning software available on the Amiga.

There was a full review of the Pandaal scanner and Daatascan Professional software in Issue three; the Golden Image scanner and *Touch-Up* software are reviewed in this issue on page 99. **JW**

Q

Samples for *MED*

I have just obtained a copy of *MED 3*. Could you please tell me if there are any available samples containing five octaves, preferably for the piano or other stringed instrument?

J Law
Didcot
Oxon

A

There are sample disks around, although they are a trifle hard to get hold of unless you can find a complete *Soundtracker* sample set. But you can always purchase a Datel snapshot cartridge and rip the samples from demos and so on. This may sound a bit harsh, but the best quality samples are to be found in the public domain and ripping them out of demos is the best way to get them. You can get software options like *Aspro*, a memory resident program, or one of the many sample/tracker rippers, such as those reviewed in the PD World column of this issue. You could always try sampling the things yourself, however, and this is the only sure way of getting the right samples. Either sample from a record, or use a PZM microphone from Tandy (around £30 and stonkingly good quality), and the *Perfect Sound* sampler and software from SunRize, distributed in this country by HB Marketing (☎ 0753 686000). **PS**

Q

PD publishing

Are there any desktop publishing programs for the Amiga in the public domain? Also, is there a PD 'typing tutor' program?

Caroline Mathews
St. Austell
Cornwall

A

The answer to the first question is no there isn't, although there are cheap ones. *Pagesetter II* from Gold Disk Inc (distributed in this country by HB Marketing ☎ 0753 686000) is the best cheap one at £61.25, as this uses Agfa Compugraphic fonts for sparkling output on any type of printer. *Pagesetter* is the budget version of *Professional Page* by the same company, and is black-and-white only. On the typing front, there is to be a PD typing tutor program on issue four of *The Disk* (available from: *The Disk*, 6 Stubbing Brink, Hebden Bridge, W. Yorks HX7 6LR.) **PS**

Q

C64 emulator

I own an A500 as well as a Commodore 64 with a 1541 disk drive and many war games. I believe that there are some C64 emulators on the market for the Amiga, and I would be most grateful if you could let me know if it is actually worthwhile buying one as I don't want to get rid of my C64 war games, but two computers take up a great deal of space. Any information you can give me regarding price, best buy, where they are stocked and how they fit into the Amiga would be very welcome.

John Derret
Perth
Scotland

A

As far as Commodore 64 emulators go, the *A64 emulator* (Fish disk number 379) is the best there is, and surprisingly enough it's a shareware program. The emulator is software-based and the shareware fee has to be sent to the US, for which you get the hardware to connect the Amiga to your 1541 drive. This allows the easy transfer of your C64 software to the Amiga.

Once on the Amiga, the software can be saved to Amiga disk, and then run from the Amiga side. Speed-wise it is a little slower than a 64, and the best way to run 64 software is still by using a real 64. However, the *A64* is a very clever piece of software, and well worth having not only for serious use but for curiosity value as well. **PS**

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I SEE NO TIPS

Don't need our help? Reckon you can do a better job of giving advice and tips? Well, do it! As well as asking for advice, we want you to give it, too. If you have discovered a useful tip for any program, hardware, language or whatever, send it to us and if it's any good we will use it on the Amiga Answers pages and bung you £5 in return. If you think we have got an answer wrong, or haven't given the full picture, give us what you think is the right answer – we might even cough up some cash for that too. So don't just sit there, get tipping and help out your fellow Amiga owners. Send your cunning solutions to: Amiga Tips, *Amiga Shopper*, 30 Monmouth Street, Bath BA1 2BW.

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Q

Icon aggro

Using various public domain utilities, I am attempting to change my Workbench disk and drawer icons to those supplied on the PD disks.

However, on attempting to double-click the new icons I either get a screen freeze or some excellent sound and graphics as the machine crashes. I remembered to change the icon's type and in the case of disk icons to rename them 'disk.info'.

Richard Dockett
Maidstone
Kent

A

Messing around with icons is a tricky business, and I would recommend the use of the PD program *Icon Master* (Amiganuts Disk 996) for the icon manipulation, and *SID* (Fish disk number 338) for transferring the files and renaming them. There is really no more to icon transfer than copying the file to the disk and altering the name to the name of the program. But the icon type has to match the file type, and the icon name has to be the same as the file. Also bear in mind that if the icons are in an open window under your *SID*, file copier or shell window, the data in the Workbench window won't be updated until you close the window and reopen it. If you transfer an icon file you also transfer the position of the icon in the window, so you will have to re-position it, select the icon and use Snapshot from the Workbench menu. *SID* is another PD program and is very useful for doing DOS operations by using a simple button based interface. If you're doing crazy stuff like transferring icons, it's a real boon and saves a lot of typing. Just copy the icon you want to RAM, rename it to the name of the file you want to attach it to on your disk, and then delete the '.info' file on your target disk. Finally transfer the icon to your target disk from RAM and there you have it. *Icon Master* can be used to make the icon the right type and even customise it to be more appropriate to your system. ***PS***

Q

PC pics

In your article on *Deluxe Photolab*, you say that it will render pictures in any format. Does this mean I can import pictures from a PC as PCX or TIFF and convert them to IFF?

My computer is an A500 with 1.3 ROM, Fatter Agnus and an A5000 board with 4Mb RAM. When I use *DPaint III* the animation breaks up slightly, enough to ruin it. Could you please advise me on this problem? I have the latest version of *DPaint III*. All other programs run okay.

Roger Jones
Easleigh
Hants

A

No, no, no. I meant any Amiga format pictures. If you want to do exotic file conversions you will have to use something like *Art Department Professional* from ASDG, costing £163.43. Contact HB Marketing (☎ 0753 686000) or Silica Shop (☎ 081-309 1111) for a copy of that. As for your animations, I can't really say why you are having problems. Anims run smoother outside the program. The smoothness of anims depends on the amount of memory you have and the speed of your processor. You really need 1Mb of Chip RAM, as this gives the computer the leg room it needs to buffer the graphics properly. ***PS***

Q

Errors with MIDI

I use *Music X* to record music played on a synthesizer. Every so often I get serial read errors, missing a note on or note off command. I spoke to someone at Microillusions who said that this was a common problem. Would buying a 16MHz 68000 reduce the number of read errors, or is the problem with the software rather than the hardware? Would the faster 68000 speed up the functions in *Photon Paint* also? I appreciate that a faster CPU will not affect the speed of the custom chips.

Would you recommend buying the faster 68000, bearing in mind that I don't use any spreadsheets or ray-tracing programs?

Chris Scott
Farnborough

A

The 68000 chip isn't really responsible for MIDI errors, as MIDI is handled by the serial port. The MIDI interface is connected to the serial port, and this allows the fast baud rate needed for practically simultaneous transfer of note on/off information. The problem comes from your MIDI interface and the only solution is to buy a more 'professional' interface that causes fewer errors. The more proficient your interface is at processing the note information, the fewer errors you get. If the the note locks on using *Music X*, this fact isn't transferred to the program, you just have what we MIDIists call a 'logjam', where you have too much information going down the MIDI lead and the note off info wasn't passed back to the synth after going through the sequencer. You can turn all the notes off by hitting the [Esc] key. When you play the sequence back you will be okay, as the locked note won't be transferred to the sequence itself. On the last part of your question, it is *always* better to have a 68030 or some faster chip than the 68000 for all manner of performance reasons, although obviously the upping of your computer's speed is most noticable in processor intensive applications like graphics. ***PS***

Q

Samples for AMOS

Is it possible to load samples from *MasterSound* into AMOS? If so, how?

Martin Hope
Sunderland
Tyne and Wear

A

MasterSound saves normal IFF samples, which can be converted to an AMOS sample bank and used in AMOS programs. To create a sample bank you need to run the *SamMaker* program on the AMOS data disk. This loads IFF samples into memory and saves them out as an .abk sample bank file. Then you use the Sam Bank command to specify which memory bank you intend using for your samples, and finally use the Sam Play command to play them. ***PS***

Q

Spreadsheet printing

I acquired the *VisiCalc* spreadsheet from the public domain. When running it, I cannot create a file in a printable format. I am always confronted with the message 'Can't create Ny'. It seems that there is the facility in *VisiCalc* to print, but I just don't seem to be able to use it effectively. Can you help?

David Mullins
Castleford
West Yorkshire

A

There are many reasons why you might not be able to create a file on a disk. Two of them are either that the disk is full, or that the disk is write protected. If you are logged to the drive with the program disk in you may not have room to create or open the file in question. As for printing, you may have to get in touch with the author of the program for additional information, as most of what you need to know is in the manual. If what you need isn't in there, or if you got the program without the manual file on disk, consult your PD house. Printing with programs also relies on you having the correct printer driver on the boot up disk, so watch out for that too. ***PS***

A

Insurance *et al*

I have a number of questions, so here goes:

I am having a lot of trouble getting insurance on my A2000. At present my whole system is uninsured. Do you know of a broker who will deal with computer insurance?

I am trying to find a PD program called *Sublim*. Any ideas where I might find it?

What books could you recommend to teach me more about AmigaDOS? I already know how to copy, format, assign and so on, but I still could not write a script file of any description.

I need a database that can save, sort and retrieve the equivalent of half a page of text. I want to store summaries of historical events and retrieve them in date order or by event/character description. Is there anything in the public domain? How about Arnor's *Prodata*?

Steve Love
Kent

A

What a barrage of queries! I insure all my stuff through the Prudential, as they seem to be able to tailor a policy to all needs.

I don't know about *Sublim*. If you know what it does, the best bet is to phone up a PD house and ask them if they have it – they are likely to be able to help. If it's an application program, you may be looking for an Amicus, Fish or TBAG disk.

The best book (or rather books, since it is in two volumes) on AmigaDOS is *Mastering AmigaDOS 2* by Mark Smiddy and Bruce Smith. Scripts are covered in great detail as this is something Mark and Bruce know a lot about.

Prodata is good, although I still say that *Superbase 4* is the best thing since sliced HAM. ***PS***

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VISA

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Q

Fat Agnus low-down

I recently bought a Fat Agnus chip for my A500. I can now get an NTSC screen, but not 1Mb of Chip RAM. I own an old Datel 512K RAM expansion without clock. I understand that new RAM expansions are compatible with 1Mb of Chip RAM, with only some easy soldering required. Can I do the same (or more) soldering to make mine work? If so, what do I need to solder?

And can you please tell me the differences between the old and the new Fat Agnus? Not just the Chip/Fastmem changes, but real hardware information. Does it blit faster? Are there more sprites? One example is that you can change between PAL (50Hz) and NTSC (60Hz) simply by writing #0 or #32 in $dff1dc.

I have replaced my old MC68000 with a new 16MHz chip, and changed the clock frequency to 14MHz with a dual flip-flop. However, the RAM (horrible 130ns, I believe) slows my SuperAmiga right down. Are there any faster RAM chips I can use to replace my old ones, and will they have any effect without me having to speed up the entire system? Can I do the same to my RAM expansion?

Is there any easy way to build a 'freeze' button for the Amiga?

Finally, I would like to know how to use a null modem cable. Do the two computers have to be synchronised to make it work? An example listing would be much appreciated.

Karl Ivar Dahl
Lillehammer
Norway

A

Getting your fatter Agnus chip to recognise 1Mb of Chip memory is possible on your machine, but the details vary depending on which revision motherboard you have. If you have a recent revision six motherboard, you will need to find JP2 on the motherboard (three small square solder pads), cut the connection between the bottom two, and solder a connection between the top two. Then, find JP7A (by the expansion RAM connector). Again, there are three solder pads; with the bottom two connected. Cut this connection. When you reboot your machine, you should have 1Mb of Chip memory.

If, on the other hand, you have a revision five motherboard, the procedure is a little more tricky. First, do the JP2 modification as described above for revision six boards. Now you need to cut a solder track. Please bear in mind that this is a difficult operation, and one which will void your warranty. We take no responsibility for any damage inflicted on your machine as a result of performing this operation, and we suggest that you get an authorised engineer to do it for you.

The track you need to cut is the one carrying the _EXRAM signal, connecting to pin 32 of the trapdoor expansion connector, on the underside of the motherboard. (You can find the pin numbering of the expansion by looking in Appendix F of your User Manual.) There is a hole about one eighth of an inch from pin 41, from which a track runs up the board. It is very close to a white line printed on the board – this white line hides another track beneath it, and must not be cut. The track coming from the hole is the one to cut.

There are several new registers in the Fatter Agnus chip, and even more registers in the new Denise chip (so far available only to A3000 owners). BEAMCONO ($dff1dc) which allows you to switch between 50Hz and 60Hz VBlank frequency is, as you point out, one of these registers. With the new Denise chip, other bits in the register are used, and they can do strange, sometimes lethal things to some monitors. Blitting is no faster than with the old Agnus, but new registers allow you to blit an area of 1,024 x 1,024 pixels in one operation. This is obviously faster than the several smaller blits needed before. There is one new sprite register, but that is only used in the new Super-Hires screen mode to display the pointer. Unfortunately, the information for these new registers is at the moment available to registered developers only.

I don't think the RAM is the problem with your 14MHz 68000. The 14MHz I bought was no good because it ran the CIA chips at twice their rated speed, the clock went twice as fast and disk drive reads/writes were very unreliable.

Building a freeze button is easy. Just connect wires between the 68000 HALT line (pin 17) and GND (pin 53) to a switch. When the switch is on, the 68000 will halt operation. Remember that the blitter, audio and so on will not halt, so sometimes you will not be able to return safely.

Using a null-modem cable is just another method of serial communications. It is all handled by the Amiga's serial.device. Look at the serial.device examples in the *Amiga ROM Kernel Manual: Libraries and Devices*. ***JR***

> ## FAT AGNUS
>
> ***Here is a tip concerning the ever-popular Fat Agnus question. A fiver goes to Chris Rainbow of Witeny in Oxfordshire for this one:***
>
> **Instead of opening up your Amiga to see if you have the new Fat Agnus, just open your trusty A500 User's Manual and turn to Appendix F. On the first page of the appendix is a schematic diagram. Look for the chip with Agnus written on it. There is a number above the name: if this number is 8370, the chip is the new Fat Agnus; if the number is 8361, the chip is the original Agnus.**

Q

Hard drive hard times

I bought a second hand GVP Impact 500. I put in a Miniscribe 20Mb drive and it worked fine. The trouble is that when I add 2Mb of memory in the sockets provided it seems to clash with the internal memory which is a 1.5Mb expansion board from Power Computing.

I have put the drive on a bog standard A500 and the same fault appears. I have also changed the power supply to the hard drive but the fault persists. The memory chips have been changed four times but without result. Help!

T J Cooper
Woodbridge
Suffolk

A

If your memory fails to work on a bog-standard Amiga 500 and you've changed the RAM and the PSU, then I'd have to say (as you have probably guessed) that your GVP Impact 500 unit is faulty. The circuitry that handles the SCSI drive and the circuitry that handles the memory are mostly separate, so it is quite conceivable that the SCSI drive will work fine, but the memory fails. ***JR***

Q

Keyboard chaos

When I turn my Amiga on, it goes through the normal screen colours and comes up with the 'insert disk' picture, but the [Caps Lock] light remains on, and the computer ignores any use of the keyboard apart from a reset. After about five or ten minutes it boots up perfectly normally. What is wrong?

I use my Amiga with a Sony TV via a modulator. The picture has an annoying habit of turning black and white, normally only when the machine is reset and only after about half an hour. During the summer, especially on hot days, it will turn black and white for no apparent reason. I think that it is probably the TV, as the problem does not occur with my other TV.

My third problem is to do with the internal disk drive. For about six months the write protect mechanism has been sticking, so that if a write enabled disk is inserted first then the drive will behave as normal, but if a write protected disk is inserted first then any further disks will be treated as write protected. It now seems to be permanently stuck, and refuses to allow a save to df0:. Is there any way to save this dying beast, or do I need a new internal drive?

Richard Peat
Rickmansworth
Hertfordshire

A

You have a faulty keyboard controller chip. This is usually fixed by opening the Amiga 500, locating the large, black chip (labelled 6570 on my machine) on the keyboard, and pushing it firmly into the socket. Some early A500 keyboards have small capacitors rammed into the chip socket. These sometimes get loose and cause this problem.

I'd talk to your local TV repairman about your Sony TV.

Your disk drive may be on its way to the great binary dustbin in the sky, or it may just need a thorough clean out. Dust, grime, dirt and fluff are the greatest enemies of disk drives, and will happily clog up the little switch that detects whether the write protect tab is on or off. ***JR***

Q

A wounded Amiga

I have my Amiga connected via an 7-pin DIN RGB cable to a Hitachi TV. Very recently, whenever I switch the Amiga on I get a grey screen with black diagonal lines across it. After up to ten soft resets the TV screen gradually clears.

Finally, just a few black lines are visible which soon disappear. It is as if some component in the Amiga needs to warm up before a perfect picture can be output. I have tried soft resets with the TV switched off but to no avail. Any ideas, please?

D G W Griffith
Shepherds Bush
London

A

You have a faulty Amiga, by the sound of it. Any weird patterns like this when the power goes on are symptoms of something rather nasty happening to the insides of your machine. Specifically, the Denise video chip may be malfunctioning. It's a great mistake to think that chips will either work or not work. Sometimes they can be 'wounded', so they only work sometimes, or they only work when they warm up, or fail once they warm up. ***JR***

Q

Elusive RAM

I have an A500 with a 1.5Mb upgrade board. When using the normal Fastmem option, everything is fine. Programs tell me that I have 0.5Mb Chip RAM and 1.5Mb of Fast RAM. However, when I switch to the Chipmem option, the programs say that I have 1Mb Chip RAM and no Fast RAM. Where did my other 1Mb of Fast RAM go?

My basic machine is of West German origin. Just recently it started to behave strangely. Software that used to run OK now suddenly hangs up on me. A utility I have from Kramden, *System Information 2*, told me that my Amiga's vertical sync frequency was 50Hz and that the power supply was 60Hz. Can you help?

Alan Woods
Atherton

A

The 1.5Mb expansion boards available from many suppliers aren't that well designed. They are designed to have the whole of the expansion memory in one block, starting at a certain address in memory. When you choose the Chipmem option it relocates the entire block of memory much lower down to the Chip memory area. Unfortunately, this means that although the first 512K is at the right memory address for Chip RAM, the remaining 1Mb is no longer in the Fast memory area. If it was enabled the Amiga would think you had 2Mb of Chip RAM (although you would only have 1Mb), so it would try to use the second megabyte as Chip memory and crash. Rather than design a clever board that would keep the vanishing megabyte at a safe address whichever mode you are in, some manufacturers chose the simple way out and just disabled the extra memory.

Your machine should have a 50Hz power supply frequency. Remove your memory board. If you still get these strange results, send your machine for repair. If not, I'd have a loud moan at the makers of your 1.5Mb card. ***JR***

Q

Chip RAM query

There are certain programs that refuse to run with 1Mb of Chip RAM, displaying a 'not enough memory' message even though there is a full 1Mb available. After processing these through *Fix Hunt*, I find that the code already loads into Chip RAM, so why won't it work? Could it be that the program loads into Chip RAM but allocates some Fast RAM for its use, hence the 'not enough memory' problem?

If such a program is disassembled, is it a reasonable job to fix it (the program in question is *RS1 Demomaker*)? I am partially literate with machine code, and have narrowed the problem down to the ALLOCMEM opcode, but can't find this in disassembled form.

When disassembled, EXECBASE becomes 0x0004, and OPEN LIBRARY becomes -552. Is there a book that gives the machine code equivalents of assembler directives, opcodes and so on?

I have seen an excellent disassembler by the name of *Resource*, but do not know if it is commercial or PD. I can only find a demo version in the Fred Fish Collection. Do you know where I can get it?

S J J Ferrat
Worthing
Sussex

A

Well, the *RS1 Demomaker* is a commercial product sold by Abacus in Germany, although it's not sold over here. I'm sure that Abacus would not be too happy about you disassembling their product. *RS1 Demomaker* was written by a demo coder from a German cracking group, and demo coders are, of course, notorious for being completely unable to write things that actually work properly.

For your future information, when you want to disassemble something that you are entitled to look at, look at the 'include' files that come with your assembler. They contain all the offsets and their absolute values. Alternatively, buy the *Amiga ROM Kernel Manual: Includes and Autodocs*.

I am not sure where *Resource* is available from in the UK. Perhaps if a supplier reads this they can send us a copy for review, because judging from the demo it is an excellent product. ***JR***

Q

Bridging the gap

I have recently changed my A2000 for an A3000. I have installed the AT Bridge Board from the A2000 and sorted out the 5.25-inch drive.

The PC install program supplied with the Bridge Board will only operate using Workbench 1.3. Using this I have created a pseudo MS-DOS drive on the hard disk and installed various business programs. These all operate OK but disk access is very slow when compared to my PC at work.

I would prefer to set up the PC Bridge Board under Workbench 2, but I have the following problems:

The install program bombs out under Workbench 2, so I copied the PC files direct from the PC install disk to the hard disk and set up the startup-sequence as on Workbench 1.3. When the PC program is now running under Workbench 2, no Janus Handler 2.63 or Janus Library 33.1 message comes up on the PC screen; the program just boots straight from the floppy and will not recognise the hard disk at all.

If I boot the computer with the PC install disk in df0: under Workbench 2.0 I get a recoverable Alert No. 01000005.00F849A. When this is cleared and the PC program is run, the Janus messages are on the PC screen, the hard disk is booted and all programs function OK. The problem, I believe, is in the PC Prefs. It is set to RAM=D000, which is correct. If this is changed to RAM=A000 under Workbench 1.3 then the Janus files will not be loaded. This is the same problem that I experience when operating with Workbench 2. Can you help me at all? Is there another version of the PC Bridge Board installation program for Workbench 2 or can you advise me on how the problem can be overcome?

A lot of my original software will not run on the A3000. Can you advise which word processor, database and spreadsheet programs are available that will take advantage of the increased power of the A3000?

M J Fuller
Ponteland
Newcastle Upon Tyne

A

Yes, I had a lot of problems getting my A2286 Bridge Board running with the Amiga 3000 too. Eventually I gave up and phoned Commodore, who sent me an information sheet on how to get the Bridge Board running under Kickstart 2.

First, you must install the files manually, as the install disk copies over some of the Kickstart 2.0 files with 1.3 files. Copy over all the files from the 'PC Drawer', 'Expansion Drawer' and the font files for pcfont. Copy the command files MakeAB and DJMount to your c: directory.

If you want to use a MakeAB hard disk file with your bridgeboard you will need to add the line CPU NODATACACHE before Binddrivers and pc/pcdisk in your s:startup-sequence file.

Once everything has been mounted and is working, you can then type CPU DATACACHE to re-enable your cache. This wasn't recommended by Commodore, so I can't guarantee how reliable it is, although it works on my machine.

As for word processors, databases and spreadsheets, I don't know of any serious packages around at the moment that don't work on the A3000. Certainly *Protext 5* and *Superbase Professional 4* work fine. Check out future issues of *Amiga Shopper* for comparative reviews of Amiga business packages. ***JR***

Q

Transformation?

My son has an Amiga 500 and I have a PC. I would like to run some of the PC software on the Amiga. I believe that there is a PC emulator called *Transformer* that can do the job. Please tell me if this is correct. If so, what are its capabilities, price and source. I already have *CrossDOS* but it won't run MS-DOS executable

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files. I shall greatly appreciate your advice on *Transformer* or any other suitable PC emulation software.

R Mittal
Champion Hill
London

A

You won't see much written about *Transformer* because, frankly, it's not what its cracked-up to be.

The basic flaw is that it can only run text-based PC programs on the Amiga and is not compatible with MS-DOS 3.3 or higher. It runs at about 15 per cent of the speed the original PC, and cannot cope with copying 3.5-inch to 5.25-inch floppies. Neither does it behave with PC graphics.

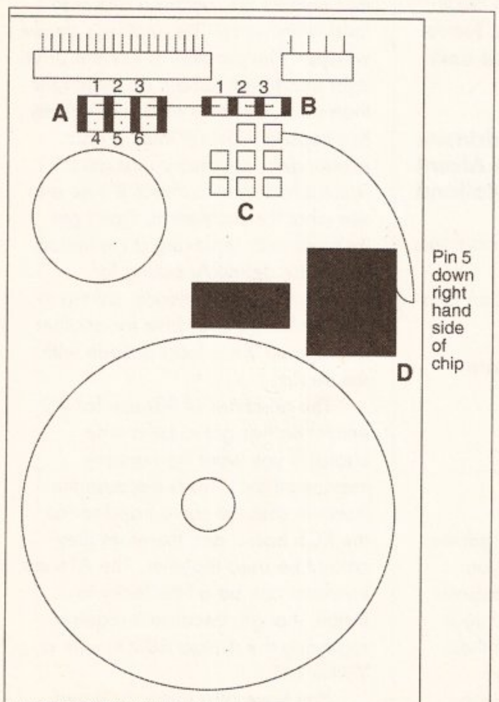
The real answer to your question involves spending some of your hard-earned dosh on a hardware emulator. Check out the PC Emulation answer above for more details. ***MD***

Q

Detect disk changes

I recently purchased a second-hand NEC FD1036A 3.5-inch disk drive. The unit performs perfectly satisfactorily apart from one small aspect: it does not seem to be able to detect disk changes automatically. Can you advise me if there is any way of fixing this problem?

Alexander B Smith
Renfrewshire
Scotland



Making the NEC drive automatically detect disk changes.

A

Ah, the old 1036A. Right. You need to do some soldering to the bottom of the drive. Referring to the diagram, you will need to add a small wire between the fifth pin down on the right hand side of the large rectangular chip (labelled D in the diagram) and the top-right solder pad in the group of eight labelled C. Bend and solder two pins together between the two blocks of jumpers behind the drive connector (pin 3 on block A to pin 1 on block B). Fit jumpers over pins 1 and 2 on block A and pins 2 and 3 on block B. This should fix your disk-change detect problem. ***JR***

A

Designing PCBs

I am looking for a printed circuit board and/or circuit design CAD package for use in my work and hobby. I would prefer a professional-type package, with full auto-routing and multi-layer boards and so on, but I am prepared to consider anything. Have you any idea as to where I can find a suitable package – be it public domain or commercially distributed?

Darren Staples
Leamington Spa
Warwickshire

A

There are several commercial PCB design packages available. Two to check out are *BoardMaster* by Black Belt Systems for £81.78 (needs at least 1.5Mb to run) and *ProBoard/ProNet* by Prolific (needs at least 1Mb) for £139.59. Both have auto-routing facilities and can handle multi-layer boards. Needless to say, these programs work best with lots of memory and a goodly sized hard disk. Both of these can be obtained from, amongst others, Ark (☎ 0983 79496).

On the PD front, there is a demonstration version of a full program called *ElectoCAD*, and another package called *PCB Designer*. Both are available from SCS Software (☎ 091-419 2805). A port of the circuit analysis system *SPICE* is available on Fish Disk 278; you should be able to get this from most public domain software libraries. ***SCR***

Q

Serious business

I have an Amiga 500 which at the moment is used for entertainment purposes. However, I would like to explore the idea of using it as a PC for serious business.

The areas of interest are those of word processing and database usage to facilitate analysis of sales information. I would therefore appreciate your advice on what hardware and software I might need to run any typical programs available.

Incidentally, I do not have any hardware other than my Amiga, so therefore I would be interested in a monitor, printer, relevant upgrades and any other equipment you might suggest.

Alternatively, would it be better for me to purchase another, all-encompassing computer and let the kids get on with their games?

P L Morgan
Ware
Herts

A

You want to purchase another all-encompassing computer? You already have the basic ingredient to be able to run a business on computer with the Amiga A500.

The first thing to obtain is the correct software. I would suggest you purchase a database, a spreadsheet and a word processor. Either *Prodata* (£79.95 from Arnor ☎ 0733 68909) or *SuperBase Personal* (£59.95 from Precision ☎ 081-330 7166) would be a suitable database, but other cheaper alternatives can also be considered. Word processors are numerous and, frankly, most would be sufficient, although one with a mail-merge facility is desirable. A spreadsheet can be used for sales analysis and accountancy. There is a package available called *The Works!* by Micro-Systems Software (distributed in the UK for £91.90 by HB Marketing ☎ 0753 686000) which includes all three applications. Depending upon the nature of the business, an accounts package may be more suitable to run the company accounts; a small business would find *Home Accounts* (£29.95) sufficient and perhaps *System 3* (£49.95) for invoicing and stock control. Both are from Digita (☎ 0395 270273).

A standard 512K A500 would have to be expanded quite substantially to cope with the increased workload. A primary concern is memory expansion: unless you have a purpose-written software package then it would be very useful to have your three applications in memory at one time. This is where the Amiga's multitasking abilities will come to the fore. Flick through the ads in this magazine and check out memory expansions.

One thing you will certainly need is a monitor. The Philips CM8833-II is the one I use.

Obviously, none of the above would be of any use if you couldn't see the result in print. It is not necessary to go to the expense of a daisywheel printer. Neither is colour required. There are many printers on the market that have a 'near letter quality' facility. See our printer feature in the last issue.

Finally, you will need a hard disk. They can store huge amounts of information, and with a much greater speed of access than a floppy drive. Check out the hard disk feature in issue one for a detailed comparison of the drives available. ***MD***

Q

Loading graphics

I am writing a piece of leisure software using *Devpac II*. Before I kill AmigaDOS I want to load in some graphics data.

I have managed to allocate some Chip memory for a five bitplane screen (51,200 bytes in total) using the _LVOAllocMem() call and placed the resulting pointer to the start address in GraphicsBase: dc.l 0.

The picture I want to use is in RAW format and is in a directory called dh0:devpacii/pictures. How do I use the dos.library _LVORead() call to bring the file into my program at run time? Do I need to open the file first using _LVOOpen()? A short example listing would be much appreciated. I'm getting fed up with consistent Gurus. (I don't want to use 'INCBIN' statements as I need to reclaim the memory later.)

Gary Crook
Royston
Herts

A

My pleasure. Here's a routine that should do the trick. Remember to include the files 'libraries/dos.i' and 'libraries/dos_lib.i'.

```
   section code, code
LoadFile
   ;A5 contains the address↵
of your allocated memory
   move.l  #picname,d1
   move.l  #MODE_OLDFILE,d2
```

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```
   CALLDOS Open        ;open ↵
the file
   tst.l   d0
   beq     Error       ;handle↵
the error if file can't be↵
opened
   Move.l  d0,handle
   move.l  d0,d1       ;file
handle
   move.l  a5,d2       ;buffer↵
address
   move.l  #51200,d3 ;file↵
length
   CALLDOS Read
   move.l  handle,d1
   CALLDOS Close       ;close↵
the file
   rts

   section data,data
handle       dc.l      0
picname      dc.b      ↵
"dh0:dev ↵
pacii/pictures/piccy1.raw",0
```

JR

Q

Duff disk duplication

I am experiencing problems while trying to duplicate disks through Workbench. I wait until the icons appear, and then insert the disk I wish to duplicate, click on its icon and select Duplicate from the Workbench menu. It tells me to replace Workbench 1.3, which I do. Then it tells me to insert the disk I wish to duplicate. After doing so, the requester tells me to insert the source disk into df0:. I click on Continue and a box appears with 'Reading 0, 79 to go' in it. The disk light comes on then goes off. I have had my Amiga for nearly four months and the problem did not occur initially when I backed up *Deluxe Paint II*. Is it a virus? If not, what on earth is it?

Edward Greenwood
Lowestoff
Suffolk

A

Your Diskcopy program is duff. Provided you have not experienced any other problems with reading and writing disks either with games or software packages, I suggest you make another copy of your master WorkBench 1.3 disk. You are using a backup copy, aren't you?

The problem may be cured by just copying another Diskcopy command into the SYS:System directory but there may be a read/write error on the disk. Be safe and make another copy.

If the problem does not go away and you are experiencing other disk problems then get your drive checked out by the dealer you originally bought the machine from. Unfortunately your 90 day warranty has now expired, so it could cost you a few bob. ***MD***

PRINTER OUTPUT

Jim Howarth of Lutterworth in Leicester writes to offer an alternative to the answer given to Philip Burman in issue three. Philip was looking for a way to send what was typed in at the Shell to the printer.

Jim points out that this can be done by typing the following:

COPY * TO PRT:

(This must be done from the Shell or CLI, of course.) Anything typed to the screen following this command will be output to the printer after [Return] is pressed. To exit the copy mode, press [Control] [backslash].

Many thanks for the tip, Jim. A fiver is winging its way towards you.

Q

No sound, no colour

I have a Citizen 9 colour printer which I can't get to print in colour despite the fact that it is OK when I try it out with text. I also bought a Philips mono 80 monitor (second-hand). I have tried all different permutations with the lead and still can't get any sound from it. I know that the computer is alright as the sound works with a TV.

A M Burnie
Pewpark
Antrim

A

You didn't say if your Citizen colour printer was printing text in colour. I am presuming it does not, in which case the problem may be due to the printer driver you have selected from preferences. Try *Deluxe Paint* with a variety of drivers and see if that cures the problem. If that does not work then make sure that the ribbon is seated properly and all settings are as per the manual. Finally contact the dealer who sold you the printer and explain the problem, I have found them especially helpful – I may be wrong, but it doesn't sound like a fault with the printer itself.

As for the Philips 80, I am not familiar with this monitor so I am assuming that it does have a sound facility in the first place – Remember that many older monitors, especially mono ones, do not! If the monitor does not have a separate sound jack, then you will have to connect the audio leads to an amplifier and separate speakers to receive sound.

Also remember that the RGB monitor output from the Amiga does not have audio pins assigned – so your purpose-built lead will not carry sound from the Amiga 23-pin connector to your monitor, a separate sound cable will be required from the Amiga audio jacks to the monitor audio input jack.

If the monitor is designed to carry the audio signal within the one connector, then you will have to check out the pin assignments for the monitor and find which ones refer to sound, then connect these to the sound output leads from the Amiga. ***MD***

Q

Dutch documentation

Three months ago I bought my Amiga in Holland, where I am stationed. Unfortunately the manuals that came with it are in Dutch. I've looked everywhere for the English equivalents, but with no luck. Please tell me where I can buy these books.

Secondly, I work as a chef and would like to put all my recipes and menus on to disk for storage and printing. Have you any ideas as to what sort of software I should be looking for?

Robert Parkinson
HQ Afcent
Holland

A

The answer to your first question is to contact:

Commodore Customer Care
FMG House
Newcombe Way
Orton Southgate
Peterborough
PE2 OBR

The nice people there should get the book situation sorted out for you.

Secondly, a standard database will be all you need to record your recipes and allow you to find them again quickly. You should find *Prodata* or *SuperBase Personal* a piece of cake (sorry about that). See the 'Serious business' answer on page 29 for more details. ***MD***

Q

Not-so-quiet drive

I purchased a QTEC external drive, model EX-310, about 7 months ago. Although the drive is very reliable, it makes a rather loud whirring sound while accessing disks. It didn't bother me until I saw an advert for the drive, stating 'very quiet' as one of its attributes. Is there any way of replacing the motor drive? If not, is it possible to part exchange it for a similar (and quieter) drive?

I have also noticed that with the large majority of games, if a disk is left in the external drive the motor spins continually. Is this normal?

I am also considering purchasing ATonce and Aschom's 1.8 Mb memory expansion. Both of these products require a 'Gary module' to be used. Will these clash with each other? If so, could you suggest an appropriate large capacity, 1Mb Chip RAM-compatible memory board which I could use with ATonce?

Ian Harrison
Dyfed
Wales

A

The QTEC EX-310 is indeed a quiet and reliable disk drive mechanism, so I imagine that there is a problem with yours.

It is not so much the loud whirring that bothers me, because one man's loud whirring can be another's gentle whisper. The problem is that the drive light should not remain on for longer than a few seconds after disk activity has ceased. I do not think a part-exchange is necessary, just get a reputable dealer to check it over and see what the problem is. Don't get involved with replacing drive motors – you are definitely asking for trouble. In my experience, asking to part-exchange one drive for another goes down like a lead balloon with the dealer.

The purchase of ATonce for PC emulation has got to be a wise choice if you want the memory expansion too. This is because the Ashcom uses the same trapdoor as the KCS board and therefore they cannot be used together. The ATonce emulator can be a little tricky to install, though, because it requires replacing the Amiga 68000 with a Vortex unit.

You have also correctly stated that a Gary module will have to be inserted between the Gary chip and its socket. Be careful, all of this is

internally modifying the computer and will invalidate the warranty.

I am not aware that there are problems with the Ashcom 1.8Mb expansion being used with ATonce, although I dare say that someone out there will correct me if I am wrong; the straight 1Mb expansion board will present no problems. ***MD***

Q

Chip RAM missing?

I recently purchased a Datel Pro RAM 0.5Mb memory expansion unit. After carefully soldering the cable to allow me to have 1Mb of Chip RAM, I tested the RAM status with the AVAIL command and it was working fine. It also worked with *Master Sound*, but *Deluxe Paint III* only allows me to use my standard 0.5Mb. It worked fine with all my software except *DPaint III*. Is there anything I can do?

David Rennocks
Walsall
West Midlands

A

Hmm... bit of a strange one, this. It doesn't seem to be an expansion RAM problem, since AVAIL recognises the extra Chip memory. I spoke to Electronic Arts, and there are no known *DPaint III* expansion-memory problems. To be honest I think you'll find that your memory is both there and working and I suspect that the difficulty is this: *DPaint III* is a massive program and when fully loaded occupies around 282K. Also, a further 100K is pinched from the system for Intuition use, so 382K of RAM has disappeared before you draw your first line with the program. In fact it's worse than that, because these allocations do not include the memory for the screen display and even the default low resolution *DPaint III* screen (five bit plane 320 pixel x 200 pixel) will use a further 40K. If you've got a second drive an additional 20K will go, so the bottom line is that even with 1Mb of Chip memory you still only have around 0.5Mb of Chip memory to use!

Try using *DPaint III*'s SWAP option and closing the Workbench to make more memory available. If you look in Appendix A of the *DPaint III* manual you'll find other tips for saving memory. ***PAO***

Q

Basic OBJECTion

How do you use a brush from *Deluxe Paint* as an OBJECT in Amiga Basic? I have tried loads of things, such as converting the file to ACBM, but I got an overflow error on the line after opening the file. I have tried using only a few colours for the brush and have even tried using icons as sprites. My real problem is the line that defines the OBJECT.SHAPE. All I have at the moment is OBJECT.SHAPE 1 INPUT$(LOF(1),1). Of course this doesn't work.

Also, how do I load and use sounds saved as IFF files in Amiga Basic?

Paul Linsell
Gainsborough
Linconshire

A

You're certainly right about the brush needing to be converted before it can be used, because the OBJECT.SHAPE statement requires a very specific file format to be employed.

In trying things like converting the brush to an ACBM, you've been going about things the wrong way. The first step should have been to get hold of the details about the format of the data required by Amiga Basic's OBJECT.SHAPE statement. The Amiga Basic manual (pages 7-7 to 7-11) talks about the ObjEdit program and describes the file format expected for these OBJECT.SHAPE statements in what is effectively this byte-by-byte fashion:

two unused long words,
depth, **width** and **height** as long words,
flag-A, **flag-B**, **flag-C** as short words,
(data1...),......these bytes are the bit plane data
(data2...),......these bytes, if present, are a shadow bit plane
(data3...),......these bytes, if present, are a collision bitplane
6 bytes for sprite-colour

You'll find details of the flag values and their purposes in the Basic manual, but for many BOB purposes you will find that you just need to create a file containing the header data followed by the bitplane (picture) data.

Writing the header details is reasonably easy. De-interleaving and possibly decompressing the bitplane data is not, and the easiest solution here is to get hold of a brush-to-Image or similar conversion program (PD libraries will definitely be able to help here). The program I used, for instance (whose source I no longer know) is called *BrushToImage* and it writes a 20-byte Image structure followed by the de-interleaved and decompressed picture data. First step for me, then, was to convert my 51 pixel by 38 pixel, 4 bitplane, test brush file to an image file.

The second step was a bit harder. I had to write a program that created a file which contained header data recognizable by OBJECT.SHAPE and which also contained the bitplane data pulled out of the newly created image file.

If you want to write a similar program you will need to know a little about the output file that your brush-conversion utility program produces because while some will dump pure bitplane data, others may add extra items into the files they write. In the case of my *BrushToImage* utility I had to realise that the first 20 bytes of the final Image file produced by the converter program had to be discarded because it was not real bitplane data. In my program I used x$=INPUT$(20,1) to soak up 20 bytes from the file.

As I've said, creating the header data for the new object file is reasonably easy – all we have to do is write the appropriate values to a file before writing the actual bitplane data. The only slight snag is that in Basic you have to be careful to make sure that the PRINT# statements do not introduce unwanted delimiters into the file being written. There are lots of ways to do this, but I've used string conversion functions to set up the values like this:

```
zero$=MKL$(0)' used to write↵
zeros
depth$=MKL$(4)' bitplane↵
depth of brush
iwidth$=MKL$(51)' brush↵
pixel width
iheight$=MKL$(38)' brush↵
pixel height
Aflag$=MKI$(24)' see Basic/↵
Rom Kernel Manuals
PlanePick$=MKI$(15)' see↵
Basic/RK Manuals
PlaneOnOff$=MKI$(0)' see↵
Basic/RK Manuals
```

and then write them to the output file using this sort of scheme:

```
PRINT#2, zero$; zero$;:
PRINT#2, depth$; iwidth$;↵
iheight$;:
PRINT#2, Aflag$; PlanePick$;↵
PlaneOnOff$;:
```

Here's a executable skeleton program which works on an image file created from a IFF brush by the utility mentioned earlier. It's more of a hack than a general utility, but it does do the job.

As you'll see, I had to know the width, height and depth of the image in order to set up the header variables. In the example code I'm working with the image dimensions mentioned earlier.

Basically the program works like this: it collects source and destination filenames, opens the files, sets up the variables for writing the header data, writes the header, discards the image structure data from the image file and then writes the real bitplane data to the destination file. The result is a file whose header and picture data is in exactly the right format for the OBJECT.SHAPE statement.

```
REM ──────────────────
REM  PAO - PROGRAM TO ADD↵
OBJECT HEADER DATA TO AN↵
IMAGE FILE
REM collect filenames...
INPUT "source filename ? ",↵
source$
INPUT "dest. filename ? ",↵
destination$
OPEN source$ FOR INPUT AS 1
OPEN destination$ FOR OUTPUT↵
AS 2

REM define the header
details...
zero$=MKL$(0)' to write zeros
depth$=MKL$(4)' bitplane↵
depth of brush - change to↵
suit your brush
iwidth$=MKL$(51)' brush width
iheight$=MKL$(38)' brush↵
height
Aflag$=MKI$(24)' see Basic/↵
Rom Kernel Manuals
PlanePick$=MKI$(15)' see↵
Basic/RK Manuals
PlaneOnOff$=MKI$(0)' see↵
Basic/RK Manuals
REM write the header details↵
to output file...
PRINT#2, zero$; zero$;
PRINT#2, depth$; iwidth$;↵
iheight$;:
PRINT#2, Aflag$; PlanePick$;↵
PlaneOnOff$;:
REM skip 20 bytes of Image↵
structure then copy the↵
bitplane data
x$=INPUT$(20,1)' you may↵
have to do something↵
different here!
WHILE (NOT EOF(1))
  x$=INPUT$(1,1)
  PRINT#2, x$;:
WEND
REM shut down and quit...
CLOSE
END
```

The following example shows how you'd read such a file. Once the picture data has been placed into a file with a suitable format you'll find that the OBJECT.SHAPE 1, INPUT$(LOF(1),1) type of statement works without any trouble.

```
REM BASIC LAYOUT FOR READING↵
OBJECT.SHAPE FILE DATA
REM open screen and window...
SCREEN 1,640,200,4,2
WINDOW 15,"SHOW OBJECT TEST↵
```

continued on page 32

continued from page 31

```
PROGRAM",(20,20)-(600,180)↵
,1,1
WINDOW OUTPUT 15

REM now open OBJECT.SHAPE↵
data file, read and close
OPEN "ram:testobject" FOR↵
INPUT AS 1
OBJECT.SHAPE 1,
INPUT$(LOF(1),1)
CLOSE 1
REM  all done so display the↵
object and wait for keypress
OBJECT.X 1, 10
OBJECT.Y 1, 10
OBJECT.ON
x$=INPUT$(1)' wait for user↵
to hit return key
REM Closedown operations...
OBJECT.CLOSE 1
WINDOW CLOSE 15
SCREEN CLOSE 1
END
```

There's another possibility that, for two reasons, you might like to consider.

This other option is to buy *GFA Basic* (£50 from GFA Data Media ☎ 0734 794941). First, it comes with an IFF->OBJECT utility that will do this type of translation automatically (incidentally, GFA objects use exactly the same format as Microsoft's Amiga Basic, so if you know someone with *GFA Basic* perhaps you could ask them to do your brush conversion for you).

The second reason for mentioning *GFA Basic* is because of your interest in using IFF sounds. Using IFF8SVX sound samples from Amiga Basic is, in theory, possible via the library call interfaces, but it is not something which should be embarked on unless you are happy with the *ROM Kernel Manual* documentation, IFF programming and so on. Little has been published about this type of coding and one of the reasons is that it would, for instance, take the whole of this issue just to explain how to start!

GFA Basic makes the job easier (but still not trivial) and there is some published code available which shows you exactly how to do it. The Abacus book called *Making Music on the Amiga* (£29.95 ISBN 1 55755 094 8) is not a book which, in my opinion, came across as being particularly good *but...* credit where credit is due – it does contain some useful GFA code for playing 8SVX sounds. ***PAO***

Q

IBM-format images

I am looking for a program in the public domain which will either show GIF files or which will allow me to convert GIF files to IFF ILBM. Do you happen to know if any such programs exist?

D Evans
Ilford
Essex

A

There are a number of graphics file conversion programs in the public domain, such as *IFF2GIF* (Amiganuts Disk 793). However, the preferred way to do this sort of thing in my book is by using something like *Art Department* or *Art Department Professional* by ASDG, distributed in this country by HB Marketing and Silica Shop. These programs convert pretty much anything to anything else, and the files are preserved in their original aspect ratios, which you can't do using the PD programs. The big drawback with the vast majority of public domain programs is that they are NTSC-based and so only process 200 lines, and since most GIF files are converted from 350 line VGA or EGA images, you only get part of the picture. ***PS***

Q

Essential books

Please recommend the best comprehensive and straightforward A500 hardware and AmigaDOS reference books.

John A Dutton
Tunbridge Wells
Kent

A

If you intend to get your hands dirty with programming, you will need two books in addition to those dealing with AmigaDOS and the Amiga's hardware. These are the *ROM Kernel Manuals*, detailing the methods that programs should use when making use of the Amiga's ROM routines. The two books are *Includes and Autodocs* (£28.95 ISBN 0 201 18177 0) and *Libraries and Devices* (£29.95 ISBN 0 201 18177 0). Both are published by Addison-Wesley and are essential for the serious programmer, but beware: they are heavy going.

If you are talking about programming the hardware and if by 'straightforward' you mean easy-to-understand then forget it – you won't find such a book. It is complex stuff, and it's best handled by taking your time and reading as much as possible from as many different sources as possible. The *Amiga Hardware Reference Manual* (£21.95 ISBN 0 201 18157 6), published by Addison-Wesley, is the official manual. It is reasonably good and, although not written for beginners (even serious beginners), a few of the explanations (how to do vertical and horizontal smooth scrolling and so on), are reasonably easy to understand provided you've already got an idea of how things such as the Amiga's bitplane display and colour indirection schemes work.

There are detailed chapters on the co-processor unit, discussions of the playfield hardware and its relationship to the Amiga's display facilities. The Amiga's sprite hardware, audio hardware and the now famous 'blitter' chip get a similar detailed treatment, and the last two chapters used to describe the remaining aspects of the Amiga's system control and interface hardware. In short, the hardware manual is comprehensive but it has basically been written for people who are already 'Amiga system literate'.

The Abacus *Amiga Systems Programmer's Guide* (£29.95 ISBN 1 55755 034 4) has got some good hardware chapters and is, in general, a very useful book. But, while being more readable, there are many things which aren't covered. I suspect, however, that this may still be the best book to get first. Have a word with Dave Tomkinson at DTBS books (☎ 0706-524304) because I believe he'll shortly have details of some new harware-oriented Amiga books scheduled for publication.

The same 'read as much as you can' situation applies with AmigaDOS. Two of the latest books to appear are *Mastering AmigaDOS2 volumes I* and *II*, both of which were reviewed in issue one of *Amiga Shopper*. The books were written by Bruce Smith and Mark Smiddy, are published by BSB Books (ISBNs 1 873308 00 0 and 1 873308 01 9, prices £21.95 and £17.95 respectively), and contain absolutely masses of useful information, clearly presented. Together, they bring the collection of available AmigaDOS reference material bang up to date, and in doing so they collect together a great deal of information which has previously either not been available or was scattered over a wide range of different sources.

What they do not cover however is the internal calling of AmigaDOS from programs, or technical details of the filing system storage arrangements and so on. This, for copyright reasons, is only available in Bantam Books' *AmigaDOS Manual* (£21.99 ISBN 0 553 344404249 5). Again, this is a very good book for technical info, but contents-wise it steers a totally different course from that followed by the BSB offerings. For the Bantam book the same warnings apply as for the Hardware Manual – the technical stuff is pretty hard going in places. Incidentally, there is a new version of the Bantam manual being printed at the moment, containing details of AmigaDOS 1.3 and 2.0. ***PAO*** AS

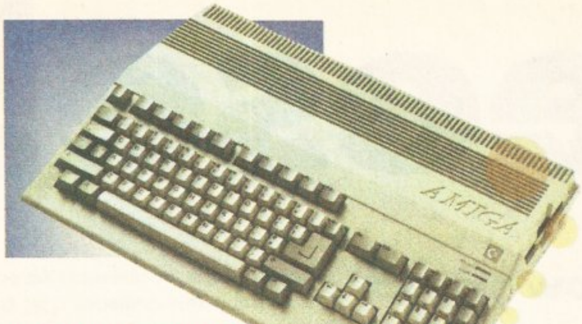
Cliff's Code Conundrum

Well, well, well, my happy hackers, welcome to the section of the magazine where you do your level best to answer one of *my* questions. Many thanks for the answers already in for the first conundrum (way back in issue three); the best of these will be printed in issue six.

But now... on to this month's conundrum quandary thingy. This one is a bit more on the practical side. Write a program to run from the Shell which will search for a file. The program should be capable of handling standard AmigaDOS wildcards in the filename. All occurrences of the file should be printed, along with details of where it is located, with reference to the root directory. All sub-directories should also be searched. The search should start from the directory in which the program is executed, unless a different directory is supplied as part of the filename. So, if the command was, for example, 'find :execute', the program would find all occurrences of the file 'execute' on the disk. If the command was 'find mysource/execute', then the file 'execute' would be searched for in the sub-directory mysource (and any directories within that one) of the current directory. Get the idea? Then get typing!

Solutions can be written in any language, but don't forget to include source code if an assembler or compiler has had its wicked way with it – how can I judge the wonderfulness of your code if I can't see it? Put the program on a standard AmigaDOS disk, include a few notes about it, and send the lot to the usual *Amiga Shopper* address, marking the envelope 'Cliff's Code Conundrum'. Include an SAE if you want it back. The winning solution will be printed in issue eight, and may well find its way on to one of the *Amiga Shopper* subscribers' disks.

Move Over 'Screengems' The New Official Commodore Amiga Pack is at Digicom



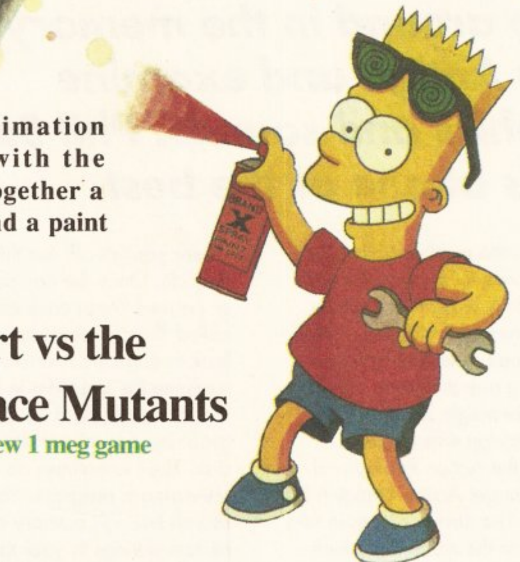
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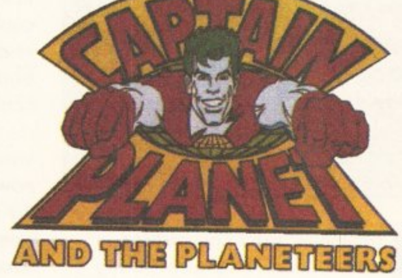
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Say Cheese!

Snapshot cartridges allow you to poke around in the memory of your Amiga and examine graphics and sounds. Phil South looks at one of the best



"Snapshot cartridges all look, on first glance, to be much of a muchness. I've been using Action Replay II for some time – let me tell you why..."
Phil South

I remember (said Phil, settling down on an imaginary rocking chair and lighting a theoretical pipe in the manner of the old timer) when you could get snapshot cartridges for the Commodore 64. They were boxes which fitted into the cartridge port of the machine, and they had a little red button on the top. When you hit this button the machine was suddenly open to your probing, allowing you to invent high score results, alter the number of lives you had in a game, or change the code in some wacky way. The machine could be returned to life as if nothing had happened, and any time you liked, during any program, you could hit that magic button.

The cartridge was by Datel, it was called the Action Replay and now you can get Action Replay II for the Amiga. The device comes in two types, one for the machines which have their expansion slot on the side of the machine, and one for those of us with Zorro slots.

What is it?

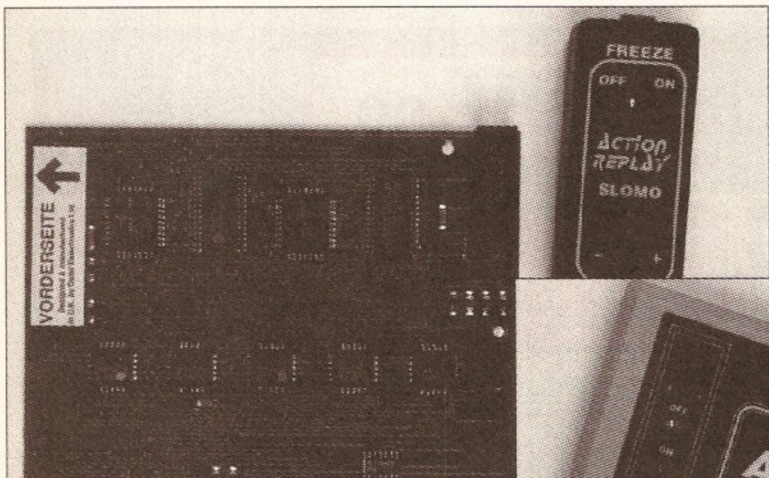
A snapshot cartridge gets its name from the ability to 'snapshot' the internals of the computer and save them to disk. All programs are saved at their current position and you can reload them again and start from where you left off. But this isn't all they do. Once the computer is frozen or paused (these carts are sometimes called 'freezer cartridges') you can look through the memory and examine the program in fine detail. Or you can look at the current graphic screens and save them to disk, like I sometimes do when I'm reviewing a program. You can even search through memory and alter certain settings to your taste while the computer is suspended. The Datel also has a feature called a Slomo, a slow motion switch, so you can slow down the function of the computer for whatever purpose: debugging and game playing spring to mind, although the former is of more interest to us, of course.

Fitting

The unit comes in two flavours: one is a proper cartridge which slots into the side port of your A500, and this has the red button (yes, the button is still red, I'm pleased to note) and the Slomo on/off switch on the top of the box. The unit is slim and flat, and before you can insert it into your computer, you need to pull off the protective cover on the side of your Amiga. Once this is done you can safely wedge the unit on to the edge connector. This connector is on the edge (surprise, surprise) of the motherboard, so the unit becomes part of the computer – part of the circuit, as it were. All this must be done while the computer is switched off, obviously. You can't upset the chips when there is no power whizzing through them, but the quickest way to kill your Amiga stone dead is to start plugging things in and out without powering down first.

The 2000 model is a Zorro card which needs to go into the co-processor slot inside the machine. The red button and the Slomo controls are on a small black remote control box fitted to a flying ribbon lead which comes out of the back of the machine and around to the front where you can reach it. In operation, the two units perform exactly the same way, as the software operating them is identical.

If you are running an accelerator board, like the ones I reviewed a couple of issues back, then you won't





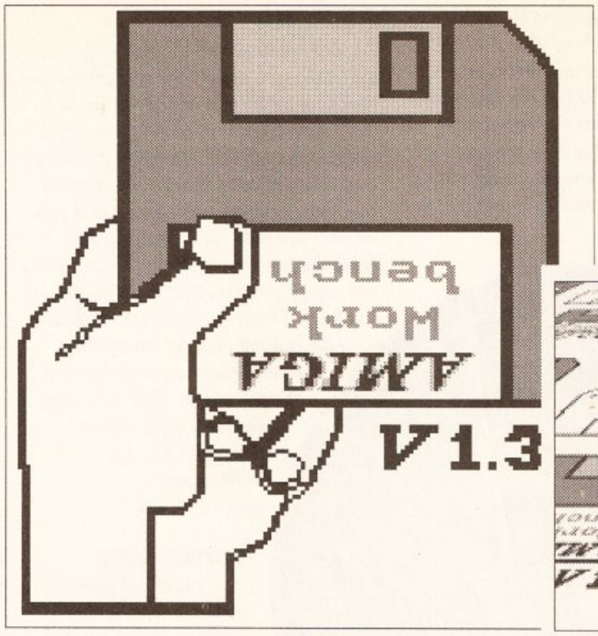
Action Replay comes in two formats, so there is an option available to you regardless of your Amiga's configuration. Both are easy to fit and offer exactly the same functionality to the user.

BLITS & BOBS

The word 'snapshot' means an informal picture taken with a simple camera, which just goes to show how language alters the meanings of things. (We probably have the Americans to thank for that little bending of the English language.) Previous to that, the word meant a shot fired without taking aim, so it's easy to see why many photographic snapshots are so blurry and malcomposed!

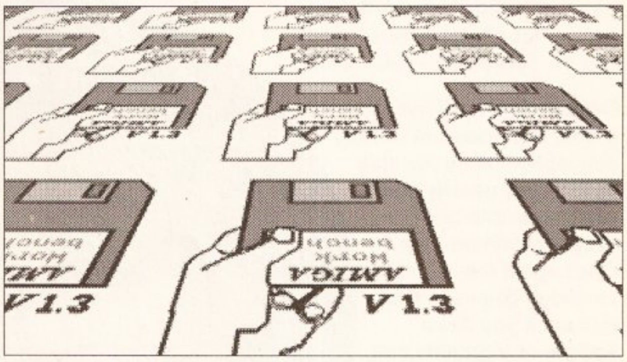
The word 'snap' itself comes from the Middle Low German word 'snappen', meaning to sieze, which in turn is related to the Old Norse word 'snapa' meaning to snuffle. With a confused past like that it's no wonder that in most dictionaries there are 30-odd meanings for the word!

be able to fit the Action Replay until you've pulled this out. Yes, the Action Replay goes into the same slot as an accelerator so you can't use them both at the same time. You have to unplug one and fit the other, which means you don't have access to the memory or the speed of your go-faster card. It can be a bit of a drag doing this every time you want to use the Datel card, but there is a way around it. If you haven't bought an accelerator card yet but want to in future, and you also need to have the use of a snapshot card, then you must ensure that the accelerator fits into the 68000 socket and emulates a 68000 fully, or you'll run into problems. The Solid State Leisure A5000 and B5000, CSA Mega Midget Racer, and Harms 020 and 030 boards are all boards which do just this – and so are boards to seriously consider.



Left: This is the Amiga startup screen, prompting you to load the Workbench disk. As the Amiga isn't even started up yet, there is no other way to grab this graphic except to use a hardware device like the Datel.

Below: Once you've grabbed the screen you can manipulate it, and using certain PD programs which insert a new picture into the memory, you can use your graphically twiddled screen instead of the usual startup on a warm boot.



Memory munching

Having hit the red button, the screen goes blue and you have a number of options at the prompt, just like a CLI. This is called the Mempeeker, and you can type a number of DOS like commands into the prompt, mostly just short words and sometimes even just a single letter. Pressing the [Help] key brings up a list of the Mempeeker commands. The fuction keys also do things in this mode: for example, [F1] clears the screen and [F3] brings up the Datel Preferences screen. One of the nice things about the editor is that it is line based, so you can edit a line after typing, or you can step up a couple of lines and press [Return] when the cursor is on a previous command to execute it again.

The Slomo can be activated at all times by flipping the switch over and turning the knob to alter the speed of the computer to your taste. You may use this for games – this is, indeed, why these things were invented in the first place. But there are some serious uses as well, like debugging or simply slowing down the machine to determine more accurately when something goes wrong. Any operation which happens too fast for you, whether it's in a game or other type of program, can be slowed down to any speed you like.

Grabbing for graphics

Pressing [P] at the prompt gets you into the graphics section of the program, and allows you to view and manipulate the graphics being shown in the currently running program. The bitplanes can be turned off and on, as can the colours of the screen and the resolution. HAM mode can be turned on and off, and the size of the screen can be shaped with the mouse buttons. Holding down the left button scrolls the screen up and the right button scrolls it down. Once the picture is how you would like it, you can save it to disk by typing a name for the file. This feature is very powerful, and enables you to grab

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The Piracy Question

Obviously a machine that enables you to dump a program in RAM to disk is a breach of copyright law in some way. The reason that we are examining this cartridge and no other is that there is more to this device than just freezing memory and dumping it to disk. It is a very useful debugging monitor and memory tool, and the memory dump feature is only really of use to program makers rather than pirates, as we'll prove in a moment.

In the normal run of things you need the Datel interface inside your machine to load a frozen program back into memory. It is possible, however, to add a piece of loader code to the file so it will load on any Amiga. Is this not an invitation to piracy? Clearly it would be a problem, except that 99 per cent of programs which are of interest to a pirate load more than the basic block of code. Multi-loading programs only have a basic runner program and the currently used block of code in the memory at any one time, so without the proper disk the scope for piracy is nil. Not only that, but if a program is a single load program, chances are it's going to pretty much fill up your available memory, and so you won't have room to load and run the loader program anyway. There is also a command which enables you to security-protect a boot disk unless you posess a unique eight-digit number, which prevents anyone using your backup disk if it is copied without your permission.

What about cribbing graphics and sounds? Well, graphics and sounds from a commercial program are still copyright, so grabbing and using them as your own is not just 'a bit off', it's a crime punishable in law. Grabbing them to examine the graphics for your own use is another thing, and I'll leave you to ponder that one. Videotaping is a good metaphor there, I think. As long as it's for your own use and you discard any bits of graphics or sound you take after you've finished with them, then all is (more or less) well.

PD is another matter. Any public domain demos you may have are just that, 'public domain', and that includes any nice graphics or sounds within those programs. Obviously if the demo makers want to impress you with their skill and yet retain copyright, then it's up to them to stick the copyright symbol on the screen, but nobody does in practice. You can 'steal' bits of sound and graphics and subtly mixed palettes to your heart's content and not feel the long arm of the law. The thing here is to try not to bolt any tunes or samples or graphics unchanged into your own programs, without at least a credit to the originator. How would you feel if your work was passed off as someone else's?

So to summarise, all manner of safguards have been put in to the cartridge to make it a tool for creation, and the important thing is that Action Replay is a very good tool for creating programs, but not such a good one for stealing them. Just ask all the software houses who own one or more for the development of programs, like Psygnosis and US Gold!

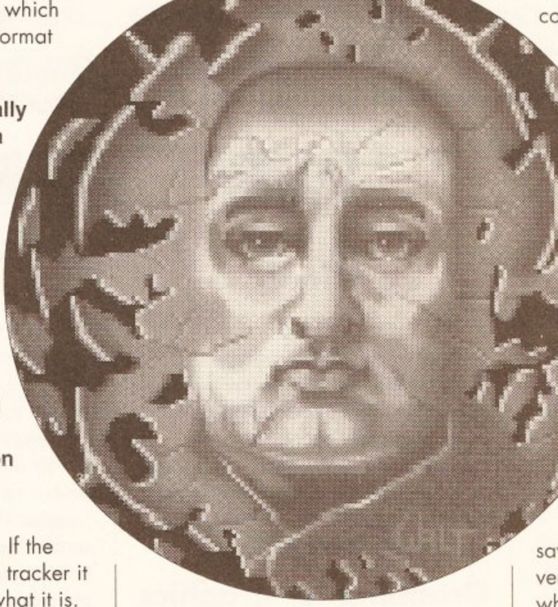
continued from page 35

images from Amiga programs for inclusion in DTP programs – very useful in my line of work, if not yours.

Scanning for sound

Sounds are also not safe when the Datel is active, and samples and *Soundtracker* scores can be found and grabbed. Typing 'TRACKER' at the prompt starts a search through memory for a block of code which suits the *Soundtracker*-style format

Demos are a hard nut to crack. The disks are usually copyable – that's the idea of PD – but usually you can't hack into the program without help. Once again the cartridge comes to the rescue. If you like a sample or a graphic and would like to use an edited version of it in your own program, using AMOS for example, you can easily push the button and get hold of it.



used by so many programs. If the program cannot identify the tracker it will have a good guess at what it is. Once you've got the program to seek out and hold a tracker score, you can rename and even save it off as a module for future use in your own programming.

Searching for samples means you get to run through memory looking for a bit of code which, when played, is actually a sampled sound rather than a piece of code. When you hear a sample you can cut it out and save it to disk as an IFF file. The range being tested is displayed on screen and you can see the samples as a graph drawn over time.

Infinite lives

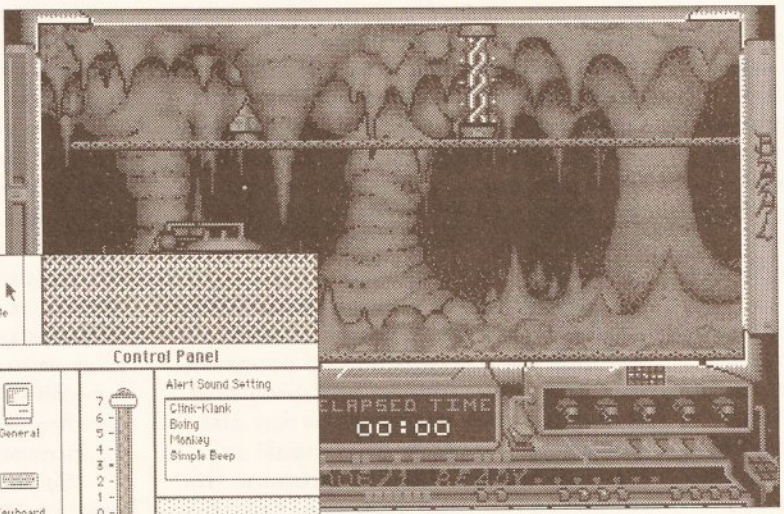
Although mainly of use for game players searching for immortality, there are many other uses for a versatile code search routine. For example, to find the 'infinite lives' memory location you get the program to search memory for the value of a set of flags. Then you lose a life in the game and check again, and you are either told that you've found the 'lives flag' or not. It's a labourious process, but one which is far easier than learning machine code and searching through the disassembled listing by hand. Although, as I say, this is primarily a feature of use to gamers, the possibility is there for you to take apart and learn about other people's programs.

Monitor

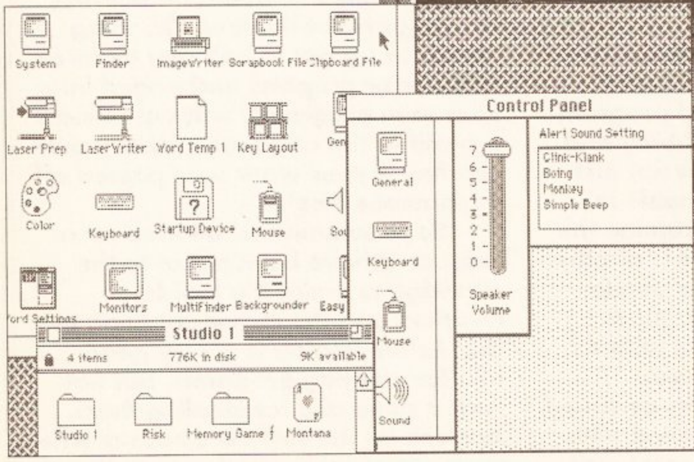
As well as its versatile grabbing facilities, you also have a powerful machine code monitor program at your disposal at any time. Using this option you can kill viruses in memory, and move blocks of memory around as if the program was one you'd just written yourself. You can also set 'breakpoints', so that a program will run until it reaches that point in the code and then you will automatically pop out into the Action Replay screen to test any registers for certain values. This is a very powerful tool, and one frequently used by professional programmers.

Summary

I can't pretend that I'm not more than a little bit nostalgic about freezer cartridges. It takes me back to the old days when the only way you had any chance to complete a game or save certain programs at some points was to freeze them and save them off. But more than that, I'm very impressed with the device for what it enables you to do with the Amiga. Being able to slow down the operation is an invaluable debugging device, as you are able to see exactly when a problem occurs and fix it, and the monitor is the best you can own, being online all the time that your Amiga is turned on. It's like laser printers and flicker fixers. Once you've had one on your machine, you can't live without it! AS



Above: even programs which are notoriously hard to get in to are easy to view with the Datel. Games are so prone to piracy that they are usually copy-protected up to the eyeballs, thus disabling your access to infinite lives or just pulling graphics out to see how they work. But with the Datel you can do it at the push of a button. The Slomo gives you lightning fast reactions too – as far as the program is concerned, at least.



Another very impressive thing is that the Datel also freezes the Amiga when emulating another computer, so above you can see the Amiga doing an impression of the Macintosh using the A-Max II Mac emulator from Readysoft.

Shopping List

Action Replay II

A500 version......................£59.99

A2000 version....................£69.99

from Datel Electronics,

Govan Road,
Fenton Industrial Estate,
Fenton,
Stoke On Trent
ST4 2RS

☎ 0782 744707

Checkout Action Replay II

Speed 15/25

You might not think speed is relevant to a device like this, but it is. The unit's commands are all single letter commands, so you can fairly zip through the menus to get to the funtion you want. The longest word you have to type is 'TRACKER'.

Construction 15/15

Both models are sturdily built and foolproof. The Zorro card has surface-mounted chips and so has zero chance of snagging on any of your internal wires and all that. The cartridge is a low profile design and takes up about the space of a couple of decks of cards, that's all.

Software 10/10

The software is stored in ROM, and it functions flawlessly. There is even an online help function so you can check up a command if you can't reach the manual from your desk or you've just forgotten it.

Documentation 9/15

Good manual, although slightly brief sometimes. I wanted to know more detail about things like the IFF screen saver, but the detail just wasn't there.

Installation 18/20

A snip really, especially the A500 version. Just bang in the cartridge and off you go. The A2000 version is more of a bind, as you have to whip the lid off, and if you have an accelerator card in your co-processor Zorro slot then you can forget installing it at all.

Compatibility 14/15

Most things will allow you to freeze them, with only a few big-memory or non-legal coded programs causing a Guru Meditation. By and large the only problem you have is if an image has copper bars or similar transient effects, since you can't see them on the screen. These are shown as blocks of a single colour or not at all.

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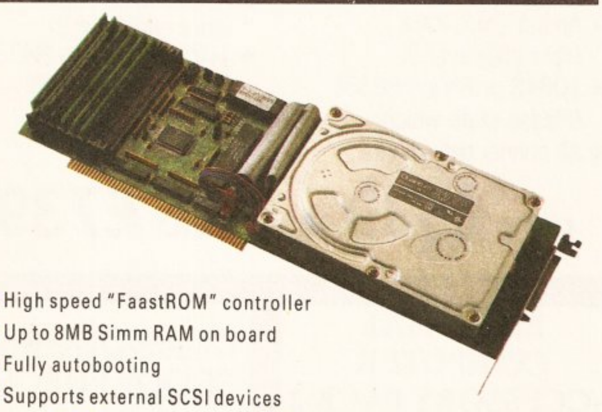
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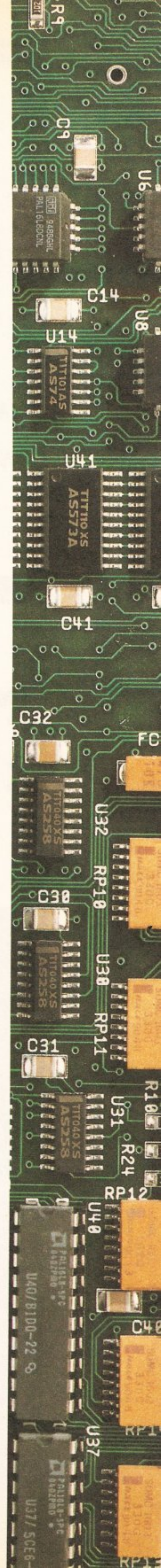
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Simultaneous solutions

> "Programming mathematical applications in Amiga Basic isn't always simple. But never fear, I'm here to guide you through the whole process."
> **Paul Overaa**

Paul Overaa explains the theory behind solving simultaneous equations, and shows how to implement a solution to the problem in Amiga Basic

Do you remember being given loads of simultaneous equations to solve at school? As we find out in later life, these equations were not only invented in order to cause us brain damage in our early years, they actually occur naturally in all sorts of calculation situations and knowing how to solve them is, in fact, very useful indeed.

The only trouble with the solution techniques which you are first taught (multiplying coefficients of equations so that they can be eliminated by addition and subtraction operations and so on), is that they aren't any good. Well, to be honest that's unfair, what I really mean is that they aren't any good for the types of mathematical situations that crop up in real life.

You see, at school most of us are only ever involved with fairly small equations: for instance, having to solve for two unknowns like this:

(1) $2x_1 + x_2 = 5$

(2) $x_1 + x_2 = 2$

In this example, by subtracting equation (2) from equation (1), it's quite easy to see that the required solution is:

$x_1 = 3$ and $x_2 = -1$

Two unknowns are straightforward, but try a similar problem with half a dozen unknown variables and you'll soon see that the work involved grows exponentially as the number of equations grows.

Many of the sets of equations which chemists, engineers, surveyors, physicists and sometimes even computer programmers have to deal with are far too large to solve using traditional pen and paper methods. Because of this, a lot of effort has been put into techniques which are suited to computer-based solutions – and it is one of these methods that I'm going to look at.

Matrix methods

I'm not going to be 'super-rigorous', but I will briefly sketch some of the mathematical ideas and I'll assume that most of you know what I'm talking about. Here it's the younger *Shopper* readers who may have the edge on the rest of us – most schoolkids from the age of about 12 upwards get introduced to the ideas involved in matrix manipulation, and a couple of years after that they are happily plodding through basic 2x2 and 3x3 matrix calculations.

Now if you've missed out on the more 'modern maths' orientated approaches then this article, particularly if you're not mathematically inclined, is going to seem complex. But don't get paranoid about it – to be honest, you don't need to understand the program at all in order to use it. If you'd rather skip the 'mathematical nasties', just learn how to use the program rather than understand it. Using it, however, does mean that you need to be familiar with matrix notation. To use the program, you need to be able to enter your equations in matrix notation form, and here's how it's done:

First look again at the example given earlier...

$2x_1 + x_2 = 5$

$x_1 + x_2 = 2$

To produce a 'matrix form', just take the coefficients from the 'x' terms and place them in a left-hand-side 'coefficients array'. Then do a similar thing with the x's and the right-hand-side coefficients, so that you end up with this type of thing...

$$\begin{bmatrix} 2 & 1 \\ 1 & 1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} 5 \\ 2 \end{bmatrix}$$

Mathematicians often write such equations as a general form Ax=b, so following this convention I'm going to be calling the left hand coefficient matrix the 'A' matrix, and the right hand side matrix the 'b' matrix. It's convenient to identify the individual elements of the matrix, that is, the individual numbers present, by using a subscript notation. With this arrangement, the top left element of the 'A' matrix in our example is called A(1,1), the top right element is A(1,2), the bottom left element is A(2,1) and the bottom right element A(2,2). Similarly the top element of the 'b' matrix is b(1,1) and the bottom element is b(2,1).

The program

First, let me tell you about the program itself. It's been written using the Amiga Basic, which comes free with every Amiga, but I've deliberately not used any statements which are unlikely to be found with other versions of Microsoft Basic. Why? Well, these programs are not easy to write and I simply wanted to produce a version that will run on any machine which supports some kind of Microsoft Basic. I've decided to use simple skeleton input/output routines for the same reason.

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JARGON BUSTING

Coefficient: The number which comes before the unknown quantity – that is, the multiplier of the unknown variable. For example, in the expression '3x - 5y', the coefficient of *x* is 3 and the coefficient of *y* is -5.

Element: Any of the numbers in an array.

Gaussian: Gauss was a superb mathematician. The basic method used in this month's program was named after him.

Iterative refinement: To produce a solution by keeping on making attempts as long as the answers are getting better.

Matrix: An array of numbers much like you'd find in a Basic-type array. In the simultaneous equation mathematical sense, a matrix is simply an *n* x *m* set of coefficients. Mathematicians have worked out powerful ways of working with these objects as whole units. It's very powerful magic once you are happy with the notation!

Partial Pivoting: A mathematical technique based on swapping numbers around in order to minimise potentially error-prone division operations.

Residual error: A value or set of values which attempt to estimate the 'incorrectness' of the solution. The lower the residual error, the more accurate the solution.

Simultaneous equations: These are sets of linear equations (equations which do not involve unknowns containing powers) with more than one unknown quantity to be found. To find two unknowns, you need to have at least two independent equations. To find three unknowns you'll need three independent equations. Have a look at the article for some examples.

Skeleton input/output routines: This means exactly what it says – bare-bones, simple routines without fancy graphics or sophisticated editing facilities. If you wish to produce more flexible or nicely formatted I/O for the program given in this article, all you need to do is swap the existing I/O routines for something a bit more sophisticated.

Upper Triangular/ Lower Triangular: Matrix terms for coefficient arrays in which only the upper or lower areas of the matrix contain non-zero coefficients. An Upper Triangular matrix has non-zero coefficients in the upper area.

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The program, when it runs, will ask you for the dimension of the simultaneous equation system you wish to solve. This is just the number of variables involved: in the earlier example, for instance, the dimension value is 2, since there are two variables – x_1 and x_2 – while in the output example shown on this page there are four equations with four unknowns – so it is a four-dimensional system.

Once the individual terms of the equations have been put in place, the program prints out the input data and then, when the user presses [Space] it makes a first 'estimate'. In many cases this first estimate will be exact, but on other occasions it may be necessary to make two or three additional attempts (again done by pressing [Space]). You quit the program by pressing any key other than [Space].

How do you tell when you've got a reasonable solution? Well, to a certain extent this varies depending on the type of equations you're trying to solve. Some equations are difficult to handle because the equations themselves are mathematically awkward, while others are prone to error because the coefficients have come from experimental data which is itself subject to error.

Either way the resulting equations, which are termed 'ill-conditioned', are a pain to solve. Unfortunately, knowing that they are ill conditioned doesn't always help us solve them – but at least it gives us an impressive-sounding name which we can make excuses with!

The error present is estimated in the delta-X values which are printed with the solution. As a general guide, you should look at the delta-X terms: when they become close to zero (and your solved x values are not changing) then the program will have found the solution to your equations. If all the delta-X values are zero, then the program will have produced an exact solution – or, at least, an exact solution to the limit of the computer's mathematical precision.

Programming the maths

Take my word for it – it's not particularly easy! The technique I've used is based on something called Gaussian Elimination, but I've made some fairly standard concessions to help the computer-based solution. I am using something known as 'partial pivoting' to minimise errors in the coefficient matrix, and I'm also attempting to iteratively refine the answers produced by estimating the errors and using them to 'guide' the solution to the best possible values. The overall technique is therefore given the rather long-winded name of 'Gaussian Elimination with Partial Pivoting and Iterative Refinement'.

How does it work? Well, our input data goes into matrices 'A' and 'b', so the equation we want to solve can be written as...

$$\mathbf{Ax = b}$$

Now if we can perform a set of operations L^{-1} on matrix A, such that the resulting left hand side is an upper triangular matrix U, then we're able to pre-multiply each side of the equation to produce the following arrangement:

$$\mathbf{L^{-1}Ax = L^{-1}b}$$

in other words: $\mathbf{Ux = L^{-1}b}$

The upper triangular type of matrix can be solved by back substitution and, since we will know U, b and the inverse L matrix, we can therefore compute the required 'x' values. In the program we get the inverse L matrix in rather a sneaky way – we load it initially as an identity (that is, 0s in all positions except along the leading diagonal, where all the elements are 1s). Then whatever we do to the left hand side coefficient matrix we also do to the identity matrix. By the time the left hand side is in upper triangular form, the inverse L matrix will be known.

The program goes through all of the above operations and, having got the left hand side in upper triangular form, it then back-substitutes to find the unknown 'x' values. The partial pivoting technique used initially to minimise errors is not enough because floating point computer arithmetic is not (in general) exact, so residual error analysis is therefore also used to modify and help improve the solutions obtained. I've stuck to a fairly standard implementation of this approach, and the program is broken up into lots of small, clearly labelled routines – so you should be able to easily identify the code relating to the individual parts of the method.

If you would like to brush up on the maths involved, then further details are not too hard to find. Most standard 'A'-level maths and graduate-level numerical analysis books will include details of solving simultaneous equations by Gaussian Elimination – it's a technique which is very well known.

In use

Here's a nice easy example to get you going: the idea is to solve this four dimensional equation set...

$$\mathbf{1x + 1y + 1z + 1t = 10}$$

$$\mathbf{2x - 1y + 4z + 3t = 24}$$

$$\mathbf{-1x + 2y - 1z + 2t = 8}$$

$$\mathbf{18x + 0y - 2z + 4t = 28}$$

The program uses X1,X2,X3 and X4 to label unknowns (instead of the *x,y,z,t* in the example equations) but obviously that is neither here nor there – the mechanism is the same no matter what the unknowns are called. All we need to do is strip out the coefficients to produce the left- and right-hand side coefficient sets and write them out using a scheme something like this:

1	1	1	1	10
2	-1	4	3	24
-1	2	-1	2	8
18	0	-2	4	28

Run the program and enter each coefficient as the program asks for it. In this case, the program gets the answer first time to an accuracy of 0.00001 and takes only two iterations to produce the answers X1=1, X2=2, X3=3 and X4=4. These, of course, correspond to the solution of the problem we were trying to solve (namely *x*=1, *y*=2, *z*=3 and *t*=4).

When you have run through this example, make up some of your own to test the program: as you start experimenting with more complex equations, I think you will be quite impressed with the results – especially since, unlike many Basic programs written to deal with mathematical problems, this one is quite small. AS

A SAMPLE SESSION

The program introduces itself, asks for the dimension of the system and then asks you to enter the coefficients...

```
****      GAUSSIAN ELIMINATION PROGRAM Paul Overaa 1991
****
****  Note: Connect PRINTER before running this program ****

What dimension system do you wish to solve? 4

A(1,1)... ? 1
A(1,2)... ? 1
A(1,3)... ? 1
A(1,4)... ? 1
A(2,1)... ? 2
```

(...etc.)

```
B(1)...  ? 10
B(2)...  ? 24
B(3)...  ?  8
B(4)...  ?  28

PROBLEM TO BE SOLVED IS AS FOLLOWS:

 1.000000   1.000000   1.000000    1.000000 (X 1)  10.000000
 2.000000  -1.000000   4.000000    3.000000 (X 2)  24.000000
-1.000000   2.000000  -1.000000    2.000000 (X 3)  8.000000
18.000000   0.000000  -2.0000000   4.000000 (X 4)  28.000000

Press SPACEBAR for first estimate - or any other key to quit

X 1 =          1.000000        delta-X 1 = -0.000000
X 2 =          1.999999        delta-X 2 = -0.000001
X 3 =          3.000000        delta-X 3 = -0.000000
X 4 =          4.000000        delta-X 4 =  0.000001

Press SPACEBAR for further estimate - any other key to quit
```

The low residual errors (delta-X_n) values tell us that we're already near to some good answers, and the next iteration confirms this. Here's the result of the next iteration...

```
X 1 =          1.000000        delta-X 1 = -0.000000
X 2 =          2.000000        delta-X 2 = -0.000000
X 3 =          3.000000        delta-X 3 = -0.000000
X 4 =          4.000000        delta-X 4 =  0.000000
```

That's it. The X1-X4 program results correspond to the *x*=1, *y*=2, *z*=3 and *t*=4 needed to solve the original equations, so we can hit any key other than the spacebar to exit the program.

THE PROGRAM

```
REM =====================================================================
REM G A U S S I A N - E L I M I N A T I O N
REM ---------------------------------------------------------------------
CLEAR
PRINT"**** GAUSSIAN ELIMINATION PROGRAM - Paul Overaa (1991) ****"
PRINT"**** Note: Connect PRINTER before running this program ****"
PRINT:INPUT"What dimension system do you wish to solve";N%
DIM U(N%,N%),A(N%,N%),INVERSE.L(N%,N%),b(N%),C(N%),X(N%),R#(N%)
DIM DELTA.X(N%),DELTA.C(N%)
GOSUB COLLECT:'"INPUT ROUTINE" ------>
GOSUB DISPLAY'"PRINT PROBLEM" ------>
REM ===================================================================
REM M A I N - B L O C K
REM -------------------------------------------------------------------
GOSUB ESTIMATE'-------------------> Get initial X estimate
PRINT"Press SPACEBAR for first estimate - or any other key to quit""
WHILE NOT (ASC(INPUT$(1))<>32)
  GOSUB REFINE '"ITERATIVE REFINEMENT"
  GOSUB CURRENT.SOLUTION'"PRINT ITERATION VALUES"
  FOR I%=1 TO N%:X(I%)=X(I%)-DELTA.X(I%):NEXT I%'Adjust X() values
  PRINT"Press  SPACEBAR for further attempt - any other key to quit"
WEND
END'.... Logical end of program
REM ===================================================================
REM E L I M I N A T E - W I T H - P A R T I A L - P I V O T I N G
REM -------------------------------------------------------------------
ESTIMATE:
FOR PIVOT%=1 TO N%-1
  LARGEST%=PIVOT%
  FOR ROW%=PIVOT%+1 TO N%
   IF ABS(U(ROW%,PIVOT%))>ABS(U(LARGEST%,PIVOT%)) THEN LARGEST%=ROW%
  NEXT ROW%
  IF LARGEST%<>PIVOT% THEN GOSUB INTERCHANGE'Row interchange routine
  FOR ROW%=PIVOT%+1 TO N%
   MULTIPLIER=-1*U(ROW%,PIVOT%)/U(PIVOT%,PIVOT%)
   FOR COLUMN%=1 TO N%
    U(ROW%,COLUMN%)=U(ROW%,COLUMN%)+MULTIPLIER*U(PIVOT%,COLUMN%)

INVERSE.L(ROW%,COLUMN%)=INVERSE.L(ROW%,COLUMN%)+MULTIPLIER*INVERSE.L(PIVOT%,CO
LUMN%)
   NEXT COLUMN%
   C(ROW%)=C(ROW%)+MULTIPLIER*C(PIVOT%)'We do this at the same time... easier
  NEXT ROW%
NEXT PIVOT%
REM ===================================================================
REM B A C K - S U B S T I T U T I O N
REM -------------------------------------------------------------------
FOR ROW%=N% TO 1 STEP -1
  X(ROW%)=C(ROW%)
  FOR COLUMN%=ROW%+1 TO N%
   X(ROW%)=X(ROW%)-U(ROW%,COLUMN%)*X(COLUMN%)
  NEXT COLUMN%
  X(ROW%)=X(ROW%)/U(ROW%,ROW%)
NEXT ROW%
RETURN
REM ===================================================================
REM R O W - I N T E R C H A N G E - S U B R O U T I N E
REM -------------------------------------------------------------------
INTERCHANGE:
FOR COLUMN%=1 TO N%
 SWAP U(PIVOT%,COLUMN%),U(LARGEST%,COLUMN%)
 SWAP INVERSE.L(PIVOT%,COLUMN%),INVERSE.L(LARGEST%,COLUMN%)
NEXT COLUMN%
SWAP C(PIVOT%),C(LARGEST%)
RETURN
REM ===================================================================
REM I T E R A T I V E - R E F I N E M E N T
REM -------------------------------------------------------------------
REM First compute residual vector in double precision
REM -------------------------------------------------------------------
REFINE:
FOR ROW%=1 TO N%
 R#(ROW%)=0'Initialize
 FOR COLUMN%=1 TO N%
  R#(ROW%)=R#(ROW%)+A(ROW%,COLUMN%)*X(COLUMN%)
 NEXT COLUMN%
 R#(ROW%)=R#(ROW%)-b(ROW%)
NEXT ROW%
REM ---------------------------------------------------------------------
REM Now compute DELTA.C()
REM ---------------------------------------------------------------------
FOR ROW%=1 TO N%
 DELTA.C(ROW%)=0
 FOR COLUMN%=1 TO N%
  DELTA.C(ROW%)=DELTA.C(ROW%)+INVERSE.L(ROW%,COLUMN%)*CSNG(R#(COLUMN%))
 NEXT COLUMN%
NEXT ROW%
REM ---------------------------------------------------------------------
REM  Finally back substitute to find DELTA.X()
REM ---------------------------------------------------------------------
FOR ROW%=N% TO 1 STEP -1
 DELTA.X(ROW%)=DELTA.C(ROW%)
 FOR COLUMN%=ROW%+1 TO N%
  DELTA.X(ROW%)=DELTA.X(ROW%)-U(ROW%,COLUMN%)*DELTA.X(COLUMN%)
 NEXT COLUMN%
 DELTA.X(ROW%)=DELTA.X(ROW%)/U(ROW%,ROW%)
NEXT ROW%
RETURN
REM ===================================================================
REM  I N P U T - R O U T I N E - A - M A T R I X
REM -------------------------------------------------------------------
COLLECT:
FOR ROW%=1 TO N%
 FOR COLUMN%=1 TO N%
  PRINT"A (";ROW%;",";COLUMN%;")....  ";:INPUT U(ROW%,COLUMN%)
  A(ROW%,COLUMN%)=U(ROW%,COLUMN%)
 NEXT COLUMN%
 INVERSE.L(ROW%,ROW%)=1
 '(For convenience, we set up identity during this input loop)
NEXT ROW%
REM ===================================================================
REM  I N P U T - R O U T I N E - B - V E C T O R
REM -------------------------------------------------------------------
FOR COLUMN%=1 TO N%
 PRINT"B (";COLUMN%;")....... ";:INPUT C(COLUMN%)
 b(COLUMN%)=C(COLUMN%)
NEXT COLUMN%
RETURN
REM ===================================================================
REM P R I N T - P R O B L E M - T O - B E - S O L V E D
REM -------------------------------------------------------------------
DISPLAY:
LPRINT"PROBLEM TO BE SOLVED IS AS FOLLOWS:"
LPRINT
FOR ROW%=1 TO N%
 FOR COLUMN%=1 TO N%
  LPRINT USING"########.######";U(ROW%,COLUMN%);:
 NEXT COLUMN%
LPRINT " (X";USING"##";ROW%;:LPRINT")       ";USING"########.######";C(ROW%)
NEXT ROW%
RETURN
REM ===================================================================
REM  P R I N T - C U R R E N T - S O L U T I O N
REM -------------------------------------------------------------------
CURRENT.SOLUTION:
LPRINT:LPRINT
FOR I%=1 TO N%
 LPRINT"X";USING"##";I%;:LPRINT" = ";USING"########.###### ";X(I%);:
 LPRINT"     delta-X";USING"##";I%;:
 LPRINT" = ";USING"########.###### ";DELTA.X(I%)
NEXT I%
RETURN
REM ===================================================================
```

WIN • WIN • WIN • WIN • WIN • WIN • WIN

Five copies of Superbase up for grabs

Amiga Shopper, together with Precision Software, offers you the chance to win copies of the acclaimed graphical database *Superbase Professional 4* – prizes to a total value of over £2,000!

In the last two issues of this magazine we have been reviewing Precision Software's new database, *Superbase Professional 4*. Now *Amiga Shopper* in conjuction with Precision is giving you the chance to win your own copy of this substantial program. Five copies are on the table, each worth £411, and all you have to do is answer four simple questions to be in with a chance.

> ***"Far and away the best Amiga database ever" – Mark Smiddy, Amiga Shopper***

If you've been reading Mark Smiddy's review of *Superbase*, you'll know just how powerful it is. It's a relational database with its own programming language, DML, which allows you to create sophisticated interlinked databases. It can use ARexx to link to other programs, and it is fully equipped to cope with graphics as well as text.

Superbase is not a toy; it is a serious program designed for professional use. Like any such program it is not perfect, but depite levelling a number of criticisms, our reviewer Mark Smiddy concluded: "*Superbase* is an excellent system – still by far the best on the Amiga. *Superbase Professional 4* is a great deal better than any of the competition."

If you fancy trying your hand with this powerful program, just answer the questions priinted on the right and fill in the card bound in elsewhere in this issue. You could win the best database available for the Amiga. (Remember: you **must** enter on the card – no photocopies!) AS



Superbase Professional 4 makes entering data into forms child's play.

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Questions • Questions

Question 1

Who wrote the music for Jesus Christ, Superstar?

- **A** Andrew Lloyd Webber
- **B** David Lloyd George
- **C** Julian Lloyd Webber
- **D** Judas Escariot

Question 2

Which book was writen by Shirley Conran?

- **A** Superstar
- **B** Superwoman
- **C** Superpig
- **D** Supercilious

Question 3

What is a supernova?

- **A** A turbocharged Vauxhall
- **B** Something which is extremely new
- **C** A cocktail containg large amounts of Pernod
- **D** An exploding star

Question 4

What speed are you travelling faster than if you are moving supersonically?

- **A** 287.3 metres per second
- **B** 331.7 metres per second
- **C** 199.4 metres per second
- **D** All of the above

How to Enter • How to Enter • How to Enter • How to Enter

To enter the competion, fill in the entry card which is bound in to this issue. You need to fill in your name and address, tick the appropriate boxes and send it to the address on the card. Note that only entries on an official cards will be accepted. Entries must be received by September 5. Employees and managing directors of Future Publishing may not enter. The editor's decision is final, and frequently puzzling. No correspondence will be entered into. Any other small print you may have read on other competitions which I've forgotten also applies.

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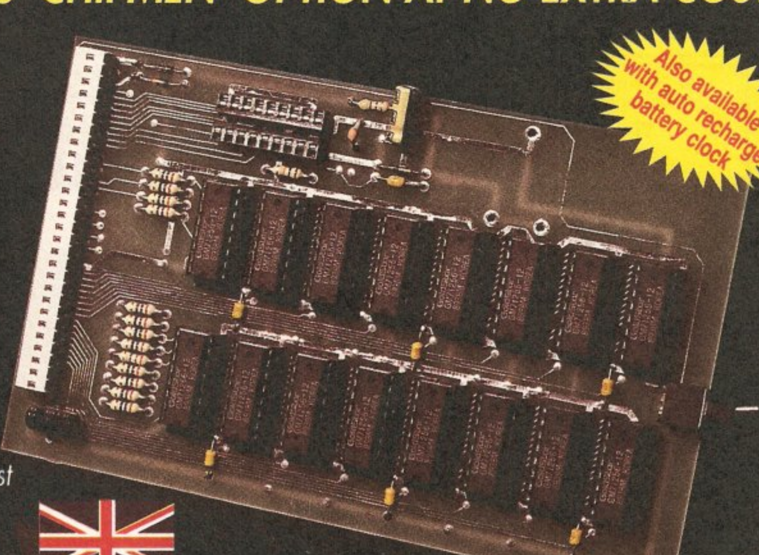
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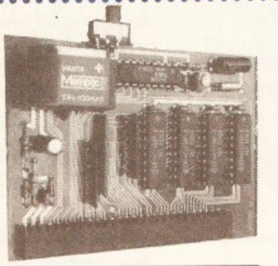
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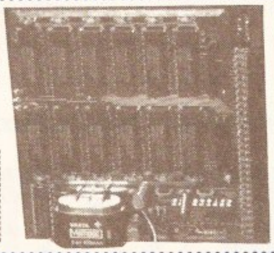
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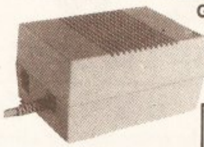
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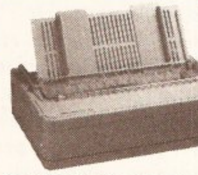
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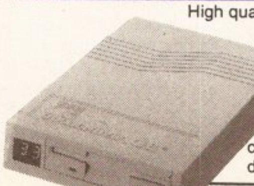
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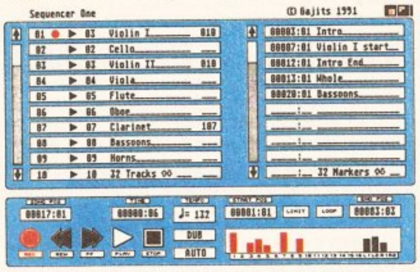
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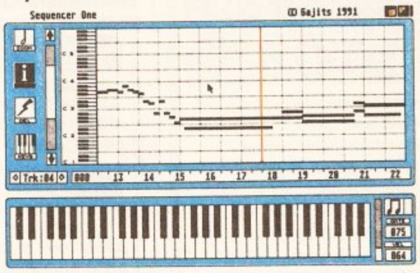
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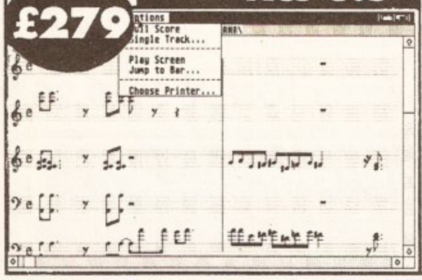
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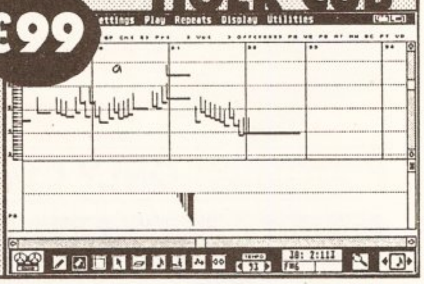
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S-s-s-sampling

Jon Bates takes a look at sampling technology, and how you too can be a pop plagiarist

There have been more sampling packages put together for the Amiga than any other machine. The majority of soundtracks for Amiga games, for instance, use sampled sound. However, the basics of sampling sound and why the Amiga is so good at it demand a little explanation. By understanding the basic concepts of sound sampling and how it applies to your computer, you can work out the best approach to take. What is more, as you will discover, it's not always necessary to lash out on lots of expensive hardware and software in order to get a good result.

What is sampling?

Although we all know the term, a decent definition might be 'the digital recording and playback of sound'. If you sing into a microphone, a constantly changing electrical current is produced which is a direct parallel to the sound you are creating. This is continuous and contains all the harmonics, waveforms and so on that go to make up the sound; it is an analogue form of sound. To store that sound digitally, you have to employ other methods than those used for analogue sound – tape or vinyl. A sampler takes a whole load of 'snapshots' of the sound, converts each snapshot to digital data and files that data carefully away. It registers details such as harmonic content, volume and pitch. Playback is a matter of assembling these 'sound pictures' in order and then converting them back into a signal which can be amplified and understood by your ears. Obviously, the software is the controller of exactly what sections of the sound are played back and in what order.

Your eyes can be fooled into thinking that a series of still images is in fact a moving picture by displaying the still images at about eight frames per second. At 25 frames per second the illusion of movement is well nigh perfect (indeed, it's the speed at which films are played) and anything higher just adds to the quality. However, your ears work on a very different principle. Give them eight 'snapshots' of sound a second and you will hear something rather like a road drill that bears absolutely no relationship at all to the sound you want. You have to multiply the number of 'sound pictures' by a factor of a thousand before your ears start to feel at all happy. At a rate of 8,000 sound pictures (samples of sound) a second you can reproduce sound reasonably, although the quality is by no means excellent.

It is only when we start getting up to a rate of 16,000 sound pictures per second (known as 16kHz) that things really start to slot into place. The common-or-garden CD player uses a sample rate of 44.1kHz: that is to say, the sound is sliced up 44,100 times every second when it is recorded and is stuck together at the same rate on playback. If you use a different sample rate to play back to the one you recorded with, then you have the equivalent of speeding up or slowing down the original sound source. Playback at a lower rate makes the sound lower and conversely a high rate heads towards a 'Mickey Mouse' vocal quality. This is how keyboard-based samplers can play back one sound at a variety of pitches corresponding to its keys.

You don't have to be smart to work out that sampling sound creates an awful lot of data. Working flat out, a mono sound sampled at 44.1kHz will fill up 1Mb of memory in about 20 seconds – and don't forget that the program may well occupy a reasonable amount of RAM itself. Games programmers use very small slices of sound sampled at the lowest possible rate and repeated ('looped') to squeeze the last possible drop of sonic power from them. But unless you have a rather expanded memory – and maybe a hard drive to store the data on – you will be a little stuck to emulate all the tricks of state-of-the-art dedicated samplers that cost £1,000s. However, you can score very well in the 'simple but effective' category by using the Amiga.

Quality considerations

Apart from the sampling rate, which is one of the critical factors in good quality sampling, there are also other things to be taken into consideration. You will have doubtless have seen publicity for samplers that brag about the number of bits that information is stored and processed in. This is the degree of accuracy to which the details of the sound are stored. The more bits you have, the more levels of accuracy you have for the sound. The Amiga works at 8 bits as far as sound is concerned, which gives a choice of 256 different levels. If you have 16-bit sound processing, you have in excess of 655,000 levels for the same information. Obviously 16-bit is much more accurate, but of course the trade-off is that it takes up far more memory space.

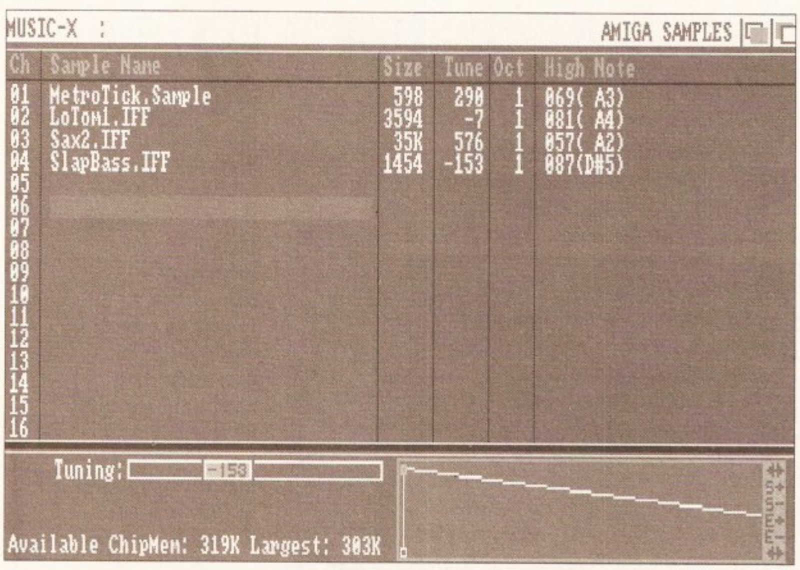


"Don't know a 'n-n-nineteen' from a Vanilla Ice? This month I've been getting to grips with samplers; I'll be explaining what they are, how they work and what's available."
Jon Bates

The part of a sampler that does all the hard work of converting from analogue to digital is called, not very surprisingly, an Analogue to Digital Converter (ADC). The Amiga does not have one of these on-board, and this explains why you need a plug-in cartridge in order to sample. However, you can play back samples for free since a DAC (Digital to Analogue Converter) is built in to Paula, the chip which looks after the music department. Feed this with digital sample information and it converts back quite effectively. Unfortunately, it only works in 8-bit so although you can buy some sample cartridges that work in 12-bit, they will have to compress the data down to 8-bit for the Amiga to use it.

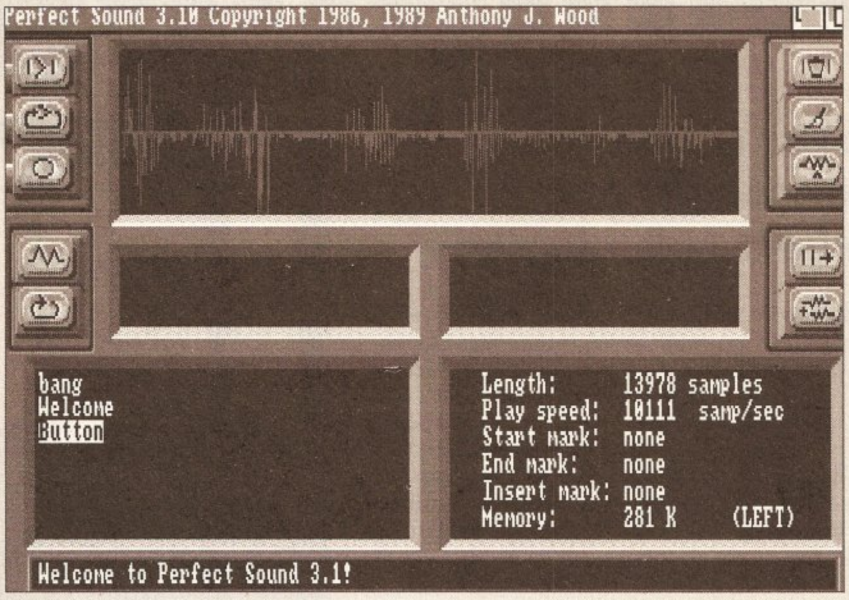
The average human ear has a hearing range from about 25 cycles per second, or kilohertz (kHz) to about 18,000kHz. To put this in more relative terms, it means that you can probably hear sounds that are a little bit lower than the lowest note on a piano to sounds that are considerably higher than the highest note. It is important to realise, though, that the majority of sounds that you hear are not just one frequency but a whole bundle of them. It is the ratio of these, known as harmonics, that give each sound its particular tone and timbre: in other words, it is the different combination of harmonics that helps to distinguish a note played on, say, a violin from

continued on page 50

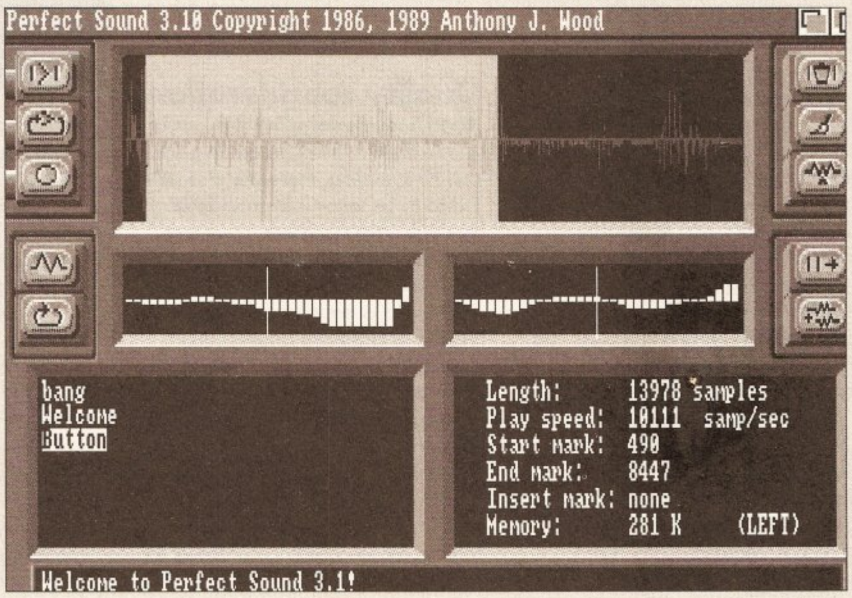


One of the sequencers that can really cope with IFF samples well and also give you another chance to re-edit the sound is *Music X*. Notice all the additional information such as the highest note in the sample.

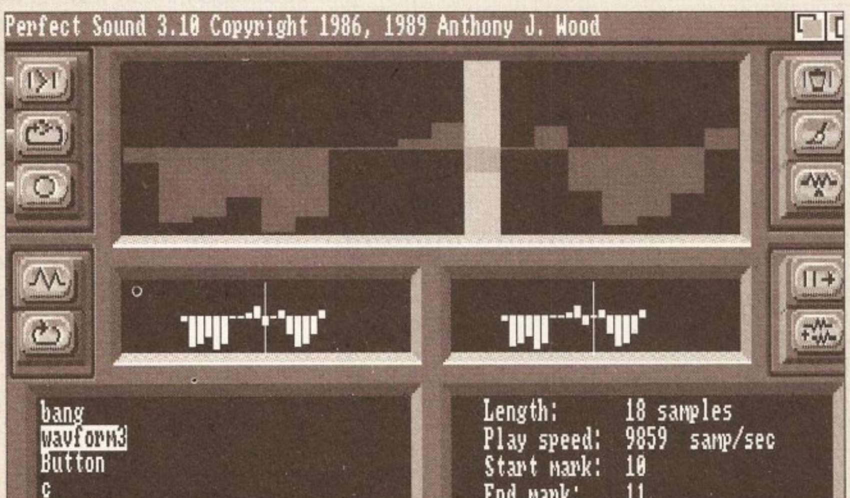
Editing a sampled sound



Perfect Sound 3 **uses a traditional screen presentation: the waveform display at the top is surrounded by icon buttons for the most used editing features, reserving the menus for more in-depth and technical stuff like the detailed editing functions available.**



Editing usually takes this form. You highlight the area to work on and then subject it to whatever the program has to offer. The two screens below the main waveform display show the beginning and end of the editing area in fine detail for looping and so on.



If you want, you can get right down to editing the waveform of a sample. The two text windows below the main display show information about the samples saved in the Amiga's memory and technical details of the current waveform, including details of the sample rate and memory usage.

continued from page 49

the same note played on an electric guitar. It is vitally important that any sampler can faithfully reproduce the upper harmonics in order that the sound you eventually hear is clear and sharp. Using too low a sampling rate will result in the sound being fuzzy – and possibly even distorted.

Fortunately, there is a very handy and simple rule-of-thumb guide to sampling rates. If you want to reproduce a sound which contains frequencies up to 10kHz then you will need to set a sampling rate of 20kHz. That is to say, the sampling rate used should be double the highest frequency which you want the DAC to reproduce.

Quite often, sampler cartridge manufacturers list all the wonderful attributes that their product has. The only trouble is that these facts are expressed in techno-babble; a whole list of impressive figures that mean a big zero to 99 per cent of all known readers. (My personal favourite is the upper sampling rate, which in some cases is quoted as high as 100kHz. This means that the product can reproduce sounds up to 50kHz in pitch. Since there are no loudspeakers made to handle that frequency it is fairly useless – and, what is more, the only use I can think of for it is as a guidance system for bats!) The bottom line is that the Amiga can only play back sounds at a maximum sample rate of 28kHz anyway, which means that you can only actually reproduce audio frequencies up to 14KHz.

Quantisation questions

Quantisation is a term often mentioned in connection with sampling. If you are familiar with sequencing music you will know that this term is also used here. In sequencing software, the quantise feature will round up your timing errors to whatever accuracy and note value you have set – thus 'smoothing out' your music. In sampling, quantisation also means to round things up. However, it is slightly different. We have already seen that sound is sliced up into handy slivers, stored as digital data and then stuck back together. There is a very slight gap that separates one sound slice from the next, no matter how fast you are sampling. Unless you can somehow compensate for this, the resulting playback will have a really nasty overtone and buzz created by these gaps as the levels jump from one sound slice to the next. The quantisation in a sampler will 'guess' the missing information and provide a smooth path from one sound slice to the next.

Just in case there are unwanted harmonies produced by the sampling conversion, your sampler should have

an anti-aliasing filter, which checks the information and gets rid of any unwanted harmonies generated by either the digital conversion or the quantisation function. These unwanted distortions are usually caused by using too low a sampling rate for the frequencies that you are attempting to record.

Another factor to bear in mind is the quality of the components used in the sampler cartridge's hardware. The best specifications in the world are useless if you have cheap, and noisy, components. This is probably the worst offender in sampling cartridges: the dreaded hiss and hum which renders the samples almost useless. As you may have suspected, the general rule is that the more you pay for a sampling cartridge, the better the quality of the components and hence your results.

BLITS & BOBS

Varèse (1885-1965), a composer who made extensive use of samples of sound recorded on tape, was asked if it was a valid art form. He replied: "An artist is never ahead of his time, but most people are far behind theirs."

Sampling and editing

OK. You've bought your sampling package and can't wait to get started. Although most of the packages on the market have good documentation, here is a general guideline to the process.

Samplers are great adherents to the golden equation 'garbage in = garbage out', so it is as well to make sure that the signal you put in to the sampler is as clean as possible.

If you are using a microphone to warble into, you would be well advised to beg or borrow a good quality one. The 30p variety that came with your kid sister's karaoke keyboard will definitely not do. If you can rig up or use a proper microphone stand it will get rid of those interesting bumps caused by your fingers on the casing.

The sockets on most of the sampling cartridges are either phono or mini-jack, and it is as well to make sure that you have a few plug adaptors and relevant leads handy. With sampling cartridges that make no distinction between a microphone and line input (direct from a CD, for example), you may have to run the signal through a mixer first as there is quite a difference between the output of a microphone and the line out socket of a CD or cassette player. The leads themselves need to be pretty good quality too, otherwise crackles and peculiar distortions can occur. In some cases you may have to use a mixer to remove frequencies that give the hardware problems.

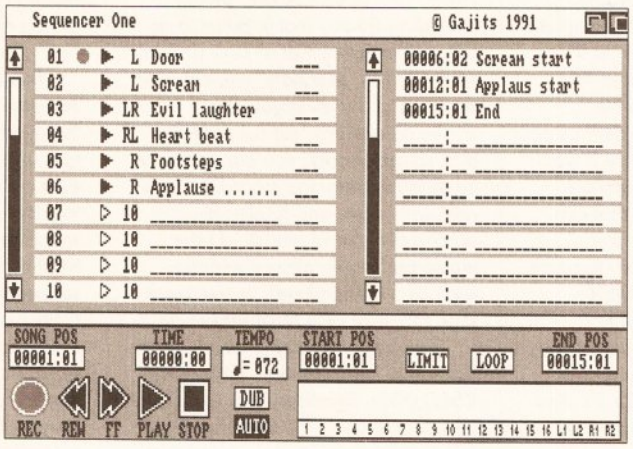
Obviously the best sampling source are CDs. With a little imagination and experimentation you can isolate various instruments and use these as samples. Remember that a sampler cannot distinguish between two sounds that occur simultaneously. The section that you choose to sample ideally needs to feature the instrument that you want on its own, without any other sound accompanying it. Having said that, if you are going to incorporate the sample in a Vanilla Ice-style collage/rip off, you can get away with using a short musical phrase complete with rhythm section. As long as it's not too long, the conflict in rhythm and tempo will not be noticed.

Tips and techniques

Nearly all software will have some method of letting you adjust the level of sound going in, and often this is a graphic display that jumps around according to the signal strength. You need to get the level so that it is just under the distortion line. Go over this boundary and the result will be, well, distorted. If you go too far the other way, the signal will be drowned out by the background noise of the sampler itself.

The actual sampling can be triggered off in two ways. The most obvious is the manual trigger: you press the button yourself when you want the sampling to start. The other method is to set a threshold; when the input signal goes over this level, sampling will start. Usually the sampling only stops when the memory remaining is full. Although this may at first seem wasteful, remmber that once you have edited the stored sound you will have a smaller file, thus leaving space in the memory for the next sample.

Editing is an area that requires very good software design. The sound will be displayed in graphic form, usually as a shape running from left to right, known as a waveform display. The features you should expect are some method of truncating the front and back of the sample, including the ability to 'zoom' in and see the start and finish in fine detail for really accurate editing. It goes without saying that at any time you should be able to play the sample to hear how your editing is affecting it. A useful function is one that maximises the volume level of the sample you have. This boosts the level up so that you are getting the very best possible signal-to-noise ratio and makes sure that the sample sounds clear and strong. Often allied with this is something that can compress the sample; that is, it will 'crunch' the data so that it fits into the smallest possible memory space and makes it possible to use the computer's memory to its best advantage.



Although you can't edit sounds in *Sequencer One*, you can use them as though they were extra MIDI instruments and place them in Stereo Left and Right positions.

There is some confusion over the 'loop' function. Traditionally there are two sorts of samples, those that are 'one shot' and those that play continuously. The 'one shot' type are usually percussive, spoken words or sound effects. Those that are continuous will play as long as you hold the 'trigger' down – this trigger may be a key on the Amiga or a key on a MIDI keyboard. The editing software should allow you to define the two points within the sample from which the sound will repeat. The software should have some way of making these two points link up very smoothly: if they don't, the loop will have a hiccup in the form of either an unequal volume or a slight pitch change and this will be very noticeable. The best editing software will display the back and front of these loop points side by side and let you juggle them up until they match exactly. There may well be additional facilities that search automatically for looping points and will also adjust the levels so that a smooth join is achieved. The problem is that some software defines looping as merely repeating the whole sample and not a section inside the sample. You really need the latter if any decent results are to be attained.

Other editing features should include the ability to copy, cut, insert and paste any part of the sample you define; this will often use a clipboard or temporary buffer. You should also be able to save any defined area as a separate sample.

You should be able to either paste and replace a section or overlay the section that you are pasting on top of what is already there. Some software will create a cross-fade from one sample to another automatically and cause the volume within a defined area to either fade up from nothing or fade down to nothing. If you experiment with these facilities you will find that you can give samples very interesting echo and phase effects, as well as the usual tried-and-tested repeating syllables used in countless hundreds of chart records.

While on the subject, some samplers offer echo and delay, plus others effects, as real-time effects that you can add to your other instruments

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JARGON BUSTING

ADC: Analogue to Digital Converter; a device which performs the process of converting the audio input from, say, a microphone into digital data.

Anti-aliasing: the process of removing unwanted noises created by sampling high frequencies at low sampling rates.

DAC: Digital to Analogue Converter; the reverse of an ADC – a device which converts digital data to the varying voltages that amplifiers and speakers can cope with.

IFF: Interchangeable File Format. A format which applies to several sorts of files for various applications on the Amiga. Here we are referring to sample data that can be transferred from one program to another.

Loop: the section of a sound that is designated to repeat as a key is held down – usually to create the illusion of a continuous sound.

MIDI: Music Instrument Digital Interface; the universal standard by which digital instruments such as synths and computers can communicate.

Quantisation: in sampling, this is the method of smoothing the overall level of sound as it progresses from one sound 'slice' to the next.

Sample rate: defined in kilohertz (kHz), this is the number of times (x1,000) per second that a sound is sliced up. So 8kHz = 8,000 samples per second.

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as they play, turning the Amiga into a multi-effects unit. These have varying degrees of success, as all too often they use a fixed sampling rate which induces noise and a reduced quality in the sound; generally, though, they can be used at a pinch.

IFF and the sampler

The Interchangeable File Format allows samples to be transferred between one piece of software and another. In nearly all cases, sampling software will read and save to IFF format and will usually give a little piece of information about the sample – whether or not it defines an octave and what sample rate it was taken at. As it happens, there are plenty of player programs that can use IFF samples: *SoundTracker*, *Deluxe Music* and *Musician*, to name but a few. There are also MIDI sequencers that have special provision for handling IFF samples as if they were extra instruments. The most notable of these are Dr T's *Tiger Cub*, *Music X*, *Bars and Pipes* and Gajits' *Sequencer One*.

Direct-to-disk

As we have seen, it is not particularly the quality of the samples that is the main problem. Samples take up so much memory space that it soon becomes a very expensive process to store more than about half a minute's-worth of decent mono samples – halve that for stereo – in the average Amiga. The smart way around this is to use a hard disk together with software that simultaneously reads the data from the hard drive and plays it back.

The future for using the computer and sampling lies in the concept of recording entire songs on to hard disk. The advantages of this are many. First of all you are getting a recording quality that is better than CD and matches that of DAT (Digital Audio Tape). Secondly, you can edit any part of the song you like, duplicate sections, cut out sections and so on. Thirdly, you can calculate cross-fades from one recording to the next with ease, and finally you can synchronise the playback of your masterpiece with other equipment such as a video player, a multi-track tape recorder or a MIDI sequencer.

This sort of facility is available on up-market music systems such as the £500,000+ Synclavier, as well as on some computers. The spearhead for the Amiga's entry into this market is headed by US-based SunRize, which is about to launch two direct-to-disk systems.

The company's first system will probably be more acceptable to most peoples' pockets and uses 12-bit sampling, while the other is aimed more at the commercial market using 16-bit high quality sampling. Both systems use additional cards which feature separate microprocessors to control the flow of data to and from the hard disk. The 16-bit version has additional goodies in the form of digital data inputs and outputs, MIDI sync and full stereo sound. The software for both cards will also perform all the usual functions expected of this equipment: full editing control of the sound, cross-fading and control over the sound filters, for example.

Since they are running on the Amiga, it comes as no surprise that these recording systems will multi-task with MIDI sequencers such as *Bars and Pipes*. By running these together you can mix the recorded sound on hard disk together with MIDI instruments controlled by the sequencer, thus giving you complete control over the final product: the Amiga becomes a complete recording studio in its own right! The number of complete songs you can store will, of course, depend on the size of the hard disk, and at some point you will probably have to back it up on to some other medium.

No prices have been fixed yet for these systems. but you can bet that they will receive the full *Amiga Shopper* treatment when they are released. AS

Shopping List

A.M.A.S £99.95
Mastersound £39.95
by Microdeal, PO Box 68, St. Austell, Cornwall PL25 4YB. ☎ 0726 68020

Amiga Pro Sample Studio II £69.99
by Datel, Fenton Industrial Estate, Govan Road, Fenton, Stoke-on-Trent. ☎ 0782 744707

Audio Engineer......................£204.30
Perfect Sound 3 ....£61.25
by HB Marketing, Unit 3, Poyle 14, Newlands Drive, Colmbrook, Berkshire SL3 0DX. ☎ 0753 686000

Pro Sound Designer (Gold) £39.00
by Power Computing, Unit 8, Railton Road, Woburn Rd Industrial Est, Kempston, Bedford MK42 7PN. ☎ 0234 843388

Technosound..........................£35.99
by New Dimension, Brooklands House, Bryngwyn, Raglan, Gwent NP5 2AA. ☎ 0291 690933/690901

Trilogic Stereo Sampler Mk II £39.95
by Trilogic, Unit 1, 253B New Works Road, Low Moor, Bradford BD12 0QP. ☎ 0274 691115

Sound Trap III.........£29.95
by Bytes and Pieces, 37 Cecil St, Lytham, Lancs FY8 5NN. ☎ 0253 734218

What's available?

This is a guide to most of the sampling software and hardware currently available. Details of prices and distributors are in the Shopping List.

A.M.A.S (Advanced MIDI Amiga Sampler)

This has the advantage that it comes complete with a MIDI interface and doesn't take over the parallel printer port – unlike most other sampling hardware. Although the sound quality is quite good, the editing software needs some updating as it is by no means the most friendly ; which rather spoils its obvious potential. The software will save files out in IFF format and all the samples can be triggered directly by MIDI instruments.

Amiga Pro Sample Studio II

Again, this is a package flawed by some rather awkward software design and redundant features, although it does have some goodies in the form of a simple sequencer for you to 'jam' along with. The sound quality is a bit muffled at times.

Audio Engineer

An upgrade of the highly recommended *Audiomaster II* software, coupled with a superb piece of hardware makes this easily the best piece of kit yet available for the Amiga. The hardware is well thought out with a 'printer thru' switch, selectable mic and line input and adjustable input levels. All editing features mentioned in the main article are present and all are very easy to use. Only its price could present a stumbling block.

Mastersound

A cheaper version of AMAS, and considering the price it does offer many facilities, including a built-in 'fun' sequencer. This could be a good introductory package, but the software does suffer from a little unfriendliness at times.

Perfect Sound 3

Now in its third upgrade, this package makes sampling quite an easy task and can hold up to six sounds at once. The screen is relatively uncluttered and the program has a full range of editing and other facilities plus sound effects available from a menu. You need to fiddle around quite a bit to get a really clean sound, though; the occasional whine and buzz creeps in and the noise level on the effects is rather unacceptable.

Pro Sound Designer (Gold)

This has been around for some time now and it is probably available at a decent discount, so shop around. It has copious facilities and the results are decent. While not high in the user friendliness stakes it does nevertheless have the ability to stack up eight sounds at once and work in stereo.

Technosound

Another beginners program, but one that is very well explained and documented (complete with tutorial 'idiot guide' cassette). Although not bristling with top level features, it will certainly get you started in fine style, and the sound quality is certainly acceptable. It has just been upgraded, with a built-in sequencer and enhanced multi-tasking features.

Trilogic Stereo Sampler Mk II

This comes with a very basic sampling program but the quality of the hardware is very good indeed. When coupled with superior software (see below) it becomes a real contender in the market.

Sound Trap III

This is an extra-cheap and cheerful package that has very simple editing functions and is enough to get you started. However, you can upgrade the software for more serious stuff and it can therefore represent a very good starting point.

Your choice of sampling package can be a little more complex than it would first seem. It is quite possible to purchase software – such as *Audiomaster II or III* – to work with your hardware. This can be a good option if you decide after a few months that, while the hardware end of your sampler is fine, the software is somewhat lacking.Most software should work with the Trilogic and Technosound interfaces, although for some reason our of the Perfect Sound software told us that it wouldn't work with other interfaces.

A typical scenario would be to buy something with excellent hardware, like the Trilogic, and save up for better software like *Audiomaster III*.

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AMIGA A1500 SOFTWARE consists of A1500 base pack and Platinum Works, D Paint 3, Populous, Simm City, Battle Chess, Their Finest Hour and 2 books	£655.00	£850.00	£930.00	£1055.00

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Citizen Swift 24X *(24-pin, 15" carriage version of Swift24)*	£399.00
Star LC10 Mono *(9-pin, 144 cps draft, 34 cps NLQ)*	£155.00
Star LC200 Colour *(9-pin, 180 cps draft, 45 cps NLQ)*	£220.00
Star LC24-10 Mono *(24-pin, 180 cps draft, 60 cps LQ)*	£215.00
Star LC24-200 Mono *(24-pin, 200 cps draft, 67 cps LQ)*	£260.00
Star LC24-200 Colour *(24-pin, 200 cps draft, 67 cps LQ)*	£295.00
Star XB24-10 Mono *(24-pin Professional Series)*	£475.00
Star XB24-15 Mono *(24-pin 15" version of XB24-10)*	£600.00
Canon BJ10E Bubble Jet *(ink jet, portable and compact)*	£289.00
Hewlett Packard Desk Jet 500 *(ink jet, 3 pages per minute)*	£459.00
Panasonic KXP 1124i *(24-pin, improved version of KXP 1124)*	£279.00

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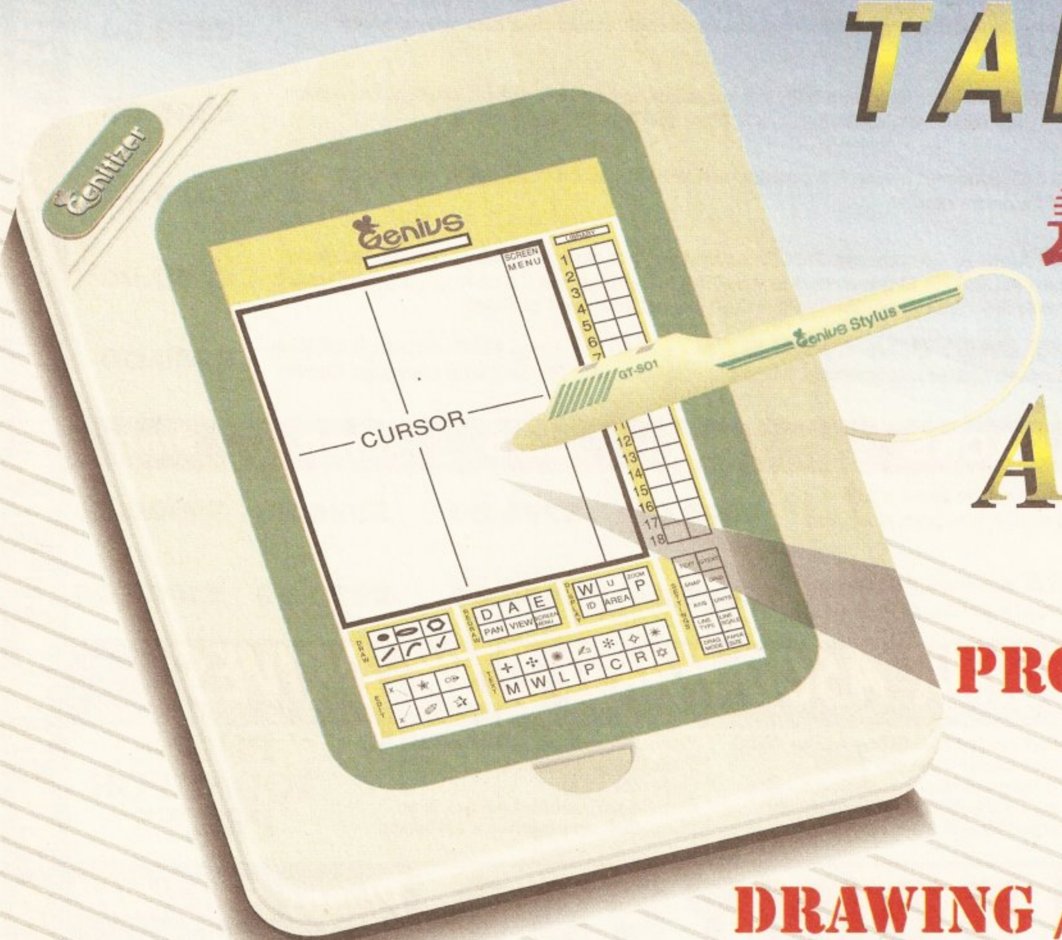
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Spectacular Spectracolor



"The Amiga is extremely good at graphics, and there are a huge number of graphics products available. Let me guide you through the maze to the ones you need, and help you avoid expensive mistakes."
Phil South

This month, Phil South looks into the new Spectracolor HAM *graphics and animation program. He also presents a tutorial on NewTek's* DigiPaint 3

Once upon a time, a software development firm called Bazbosoft released a program called *Photon Paint*. It was a HAM program and a very impressive one at that. Then there was *Photon Paint 2*, which featured HAM animation for the first time. Both the *Photon Paint* programs were released through MicroIllusions, but the newest revision of the program has changed publishers as well as its name.

Spectracolor is a much improved program, with the chief bugbear of the original – its lack of speed – fixed with a vengeance. *Spectracolor* is undoubtedly fast.

The contents of the box are as follows: two disks and a manual. And that's it. The manual is spiral bound, with one of those nice flexible and smooth plastic spirals, meaning the pages don't jam or tear when you turn them. The first disk is the program disk and this is bootable, to save any non-hard disk users the hassle of booting with one and using another. The other is a sample disk with some examples of art created with the program, some of which you will see on these pages.

First steps

One of the most prominent features of the program is that it is capable of working in just 512K, which *Photon Paint 2* in particular was not. Although you can use most parts of the program, much more than 512K is needed for most hi-res, interlace or animation functions. In fact, the manual states that 1Mb is minimum for animation, and 2Mb is recommended. Yep, it's the 'R-word' again. What they mean when they say recommended is that it is essential, but if they tell you that then you won't buy the product. High memory programs work on the principle that the company makes it work in the minumum machine minimum configuration. You get a taste of the possibilities if only you had more of everything, mostly RAM. So rather than the product being too big for your machine and you don't buy it, you are induced to buy it and then upgrade. Be sure of one thing if you buy a program like this: using formats like HAM, you can expect to find yourself looking at memory cards before very long.



Spectracolor is a graphics program capable of producing incredible results such as those shown here.

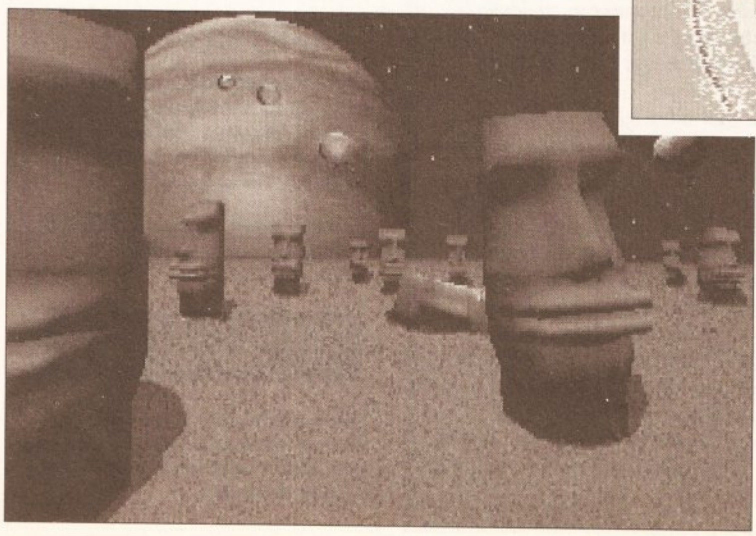
Installation is a breeze: just drag all the icons across into the subdirectory on your hard disk. For floppy disk users, simply make backup copies of the disks with Diskcopy from the CLI.

Most manuals are simply a get-you-going book, with instructions on how to use the program, and maybe a tutorial if you're lucky. But the *Spectracolor* book is more of a cross between a power user's guide and a correspondence course in using the program, with a series of lessons which take you through each part of the program in minute detail. It certainly rates as one of the best handbooks to come with a program that I've seen for a long time.

Features in use

After following the manual's intensive course, using the program is very simple indeed. The menus and tools will be familiar to users of *Photon Paint 2*, as much of the layout and function of the new program is the same. But the really noticable

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difference is the speed. Rather than waiting each time you draw to reform all the fluffy edges on your picture, the line is drawn as you go. This means that drawing must be done more slowly, but it means far less irritating waiting. There is also a 'follow mouse' option, which makes the lines you draw follow the path of the pointer rather than just drawing a straight line between the last two points, which is what normally happens if you draw too quickly.

You have a group of colours available on the menu bar at all times, but more colours from the 4,096-colour HAM palette are available when you click on the 'extended palette' option, which presents you with the familiar trio of rainbow-coloured boxes from which to mix/match your colours.

Unlike so many previous programs, you can create a colour spread and even a filled gradient in *Spectracolor*, which is useful for those shapes which require subtle shading like skin tones and sky blues. And, like most HAM packages *Spectracolor* has the facility to wrap a brush on to a solid 3D shape, and shade it as if the light were coming down on to the object from a specific direction. You can wrap on normal primitive shapes or you can perform a freehand mapping technique, which involves mapping the brush to a rubber-banded grid which you can shape to your own taste.

Other special effects available include 'rub through', which enables you to have two pictures sandwiched together one above the other, as it were; by rubbing with the cursor, the image underneath can be seen. It's as if the top picture was made of wax and you are scratching it away to reveal the picture underneath.

Among the brush effects, are the standard catalogue of effects, like the ability to do wacky brush distortions, turning any brush you grab into a flat sheet of 'stuff' on screen that can be bent, twisted, skewed and sheared.

A feature which I can't recall having seen much of anywhere else is 'pantograph'. This is where you have another cursor offset from your main drawing cursor, which reproduces a drawing from one place to another. You could use this to trace a shape, although why this archaic feature is included I don't know. In a program where all you have to do to duplicate an area is to cut a brush, why is there any need for tracing?

Animations

The 'anim toolkit' menu is behind the normal menu in *Spectracolor*: you access it by clicking on the 'ANIM' button, which is in the main menu. This presents you with a new menu containing a range of VCR-type buttons for playing, previewing and editing your animation.

One very sexy addition to the new program is the ability to 'tween' animations and even make the animated objects follow a path you have drawn with the mouse.

The only real drawback to this program is that you really need large amounts of memory if you want to animate or use the high resolution display options.

JARGON BUSTING

ANIM: an IFF animation file format created by Sparta's Gary Bonham. The file is a compressed file which saves the differences between the frames rather than the whole of each image.

Dynamic HAM: a new mode used in *DigiView* by NewTek allowing HAM (see below) in hi-res. Similar to Sliced HAM, in that the images are sharper and more photorealistic.

HAM: a mode on the Amiga which allows all 4,096 colours of the Amiga's palette to be used on screen at once.

'Tweening: a process whereby an animation is created by specifying the first and last images, and letting the computer extrapolate the data to produce the intermediate frames.

SHOPPING LIST

DigiPaint 3 ....£60.83 +VAT
by NewTek
215 SE Eighth Street, Topeka,
KS 66603, USA
☎ 010 1 913 354 1146

Spectracolor.............£59.53 + VAT
by Oxxi Aegis
PO Box 90309, Long Beach,
CA 90809-0309, USA
☎ 010 1 213 427 1227

Both programs are distributed in the UK by:
HB Marketing
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Berkshire SL3 0DX
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CHECKOUT SPECTRACOLOR

Ease Of Use............12/15
More items on menus means that you don't have to spend much time searching through the menus like you did in previous versions of the program. In most cases you can just bang a button and the program will do something right off the bat, rather than you having to spend time looking for the right tool for the job. They are all right there in front of you at all times.

Speed 8/10
Speed is much improved over previous revisions of the program – so much so that this is less of a revamp and more of a whole new program.

Output 7/10
The output still depends wholly on the type of printer and type of driver you are running. But if you are talking about video output, or output to the screen for any other purpose like game or program graphics, then it's really hot stuff.

Graphics Handling ...9/10
You can really whizz all these graphics around, with 4,096 colours at your complete disposal. The drawback with most previous HAM programs is that they suffer from being a good idea but very poorly executed. *Spectracolor* allows you to get to the meat of the screen display at all times.

Colour 10/10
More colours than there actually are(!). The program seems to smooth much of the ghosting of the HAM format out as you go along, allowing for resonably crisp displays – although with HAM you are never truly crisp – or at least, only as crisp as the design on the front of a jumper!

Text Editing 3/5
You can use any font in the 'fonts' directory of the disk. It is best if you use the fonts that come with the program, and use the main disk to boot your machine. Text can be positioned, erased and typed right on to the screen, but cannot be edited once it has been placed or typed, without cutting it as a brush.

Tools 7/10
More than enough tools right there on the screen for anyone. I like the 'anim' toolbox particulary, with its easy-to-use-and-understand VCR-style controls.

Documentation 10/10
A big manual, but very easy to navigate around. Forms either a full tutorial course in using the program or a reference work depending on how you use it.

Price Value 18/20
A very reasonable price for such an advanced product.

AMIGA SHOPPER 84/100

Spectracolor is a big, bright and bold program with more features and tools than ever before. Now it finally gives *DigiPaint* a run for its money.

GRAPHICS NEWS

Deluxe Paint is due for a revision, it seems, and *Deluxe Paint 4* is on the horizon. The program will support all resolution modes, including HAM and even the Dynamic HAM format. So the standard HAM graphics packages are going to be under threat unless they can compete. *Spectracolor* is one such package, and *DigiPaint* another. Although it has been a while since *DigiPaint* was revised, it still stands up well against the others in terms of features. But it doesn't include animation, and it's the only one that doesn't. This would be the smartest update, so you can bet it's on NewTek's mind.

If you have any Amiga IFF pictures you would like to frame or make into posters, T-shirts or sweatshirts, news has reached me of a new service to do just that. The Silicon Picture Company can produce stunning glossy prints from your IFF pictures in any size, from A4 to A0 or even 12 x A3, which would be enough to cover an entire wall. The company can also produce T-shirts with your pictures on the front, or even a sweatshirt for the winter, and there you have it. Instant fashion. I want a T-shirt with the Insert Workbench screen on it, but you may have your own preference – one of the famous digitised images, perhaps, or what about a ray traced object? Prices are £5.50 for A4, £6.50 for A3, £15.99 for a T-shirt and £19.99 for a sweatshirt. The Silicon Picture Company is at: 22 Lascelles Close, Leytonstone, London E11 4QE, and can be phoned on 081-556 7607 for details about how to submit your pictures: do mention you read about the service in this column.

The really great news this month is that after much to-ing and fro-ing across the Atlantic, I actually have the NTSC version of the Video Toaster in my possession, and both Gary Whitely and I will be doing a hot stuff graphics/video special on it in the next issue of *Amiga Shopper*. I can't wait, and I'm sure you can't either.

And just as a postscript to last month's graphics news, perhaps I was a little bit unfair to NewTek in my news piece when I said that the company didn't know the UK market and hadn't even begun work on a PAL version. Apparently it does and it has. The product just won't be ready for a while, that's all. The delay with a PAL Toaster is merely due to the complexity of the custom chips, and the success of the NTSC version. NewTek's so busy selling the US version that it doesn't have much time to devote to a UK one, and the specification may be altered a little by then. Not to say that the UK Toaster will be less toast, just that by the time it goes out, the spec of the Toaster per se will have improved.

Even though the company has said that a PAL version is on the way, do write and telephone anyway, to prove that there's demand in the UK.

continued on page 60

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DigiPaint 3 Masterclass

Although *DigiPaint 3* from NewTek is not a new program, it's surprising how few people know how powerful it really is, especially in the fields of image treatment and painting.

DigiPaint has become, over the years, the *de facto* standard in HAM painting programs, and any new programs which come along have to stand beside *DigiPaint* and say, "look guys, I'm almost as good as *DigiPaint,* honest." The quality of it is hard to beat, and since the creation of the PAL version of the program, this 'ultimate' image quality is open to all of us here in Europe as well.

So, given all of the above, here are some hints and tips for *DigiPaint* to help you get the best from this great program.



Left: images can be 'tiled', making the brush repeat itself over and over across an area that you fill.

You can also warp the brush so that certain parts of the image are larger – the image appears to 'bulb' outwards towards you. To do this, simply click up the numbers of the 'tile' box in the Controls menu, and then use the Warp control to distort the image as much as you want. The centre of the warp will be wherever you set it in the Warp control.



Right: to duplicate the kind of effects you can usually only get using a pastel crayon and rough paper, why not use the transparency control to fade out the edge of a shape? This abtract cubist painting was created by using the filled triangle tool and the edge transparency control. The edges of the triangles are faded out and give a nice 'rubbed-on' effect. Having selected the triangle tool, and adjusted the edge transparency to taste, select the range mode from the Mode menu and then just choose the right colours for your range to blend the colours together.



Left: transparency and warping can be used to warp the features on someone's face and then replace them without a join. The nose was taken off as a brush (see the left of the image) and warped. The edge transparency was set so that the edges of the brush blend naturally with the face, making it look as though this model had a nose job which went horribly wrong.



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Completely captivating?

This month, Gary Whiteley looks at two products: the Complete Colour Solution, a new package from Rombo, and a genlock and effects unit from G2 Systems



"In the world of video, the Amiga is fast becoming a low-cost alternative to professional systems. Let me guide you through the maze of different options to find the best one for your budget and needs."
Gary Whiteley

Rombo's Complete Colour Solution is a combination of two pieces of video digitising hardware which were previously only available separately. Coupled with Rombo's Vidi-Amiga and Vidi-RGB, which are the two smallish black boxes containing the hardware side of the kit, are two disks of software, comprising *VidiChrome* and *VidiGrab*, which contain all the software for grabbing and manipulating images.

And what are the boxes for? Well, in order to convert a video signal into something that the Amiga can recognise it has to be processed into numerical data ('digitised'). This is what the Vidi-Amiga is for. The video signal from your camera, video player, computer or other source is connected to the Vidi-Amiga, which is itself connected to the parallel port of the Amiga. Note that if you own an Amiga 1000, 2000 or 3000 you will need an extra connector to mate the Vidi-Amiga to your computer. Power for the unit is supplied from the second disk drive port, which means that you have to disconnect your second disk drive (if you have one). I did try plugging it into the connector on the back of my extra drive, but to no avail. My own silly fault for not having two internal drives on my 2000, I suppose!

This is all very well, but if you were simply to use the Vidi-Amiga on its own, you would soon realise that there was something lacking – namely colour!

Now there are two ways around this. One is to use the supplied red, green and blue filters, place them in-between your black and white camera and subject and, one after the other, digitise each picture through a different filter. Then, using the supplied *VidiChrome* software, merge the resultant red, green and blue components of the image together to produce a 4,096-colour HAM picture. A little complicated, you might think? Well, so did Rombo. Which leads us on to the other solution – a colour splitter.

Colour pictures

And that's what the other black box is for. The idea of a colour splitter is to separate the video signal into the three colour components required to make a colour video picture – that is, red, green and blue (RGB). This removes the need for colour filters, and also makes it possible to digitise images directly from colour sources such as colour video cameras and video decks. However, unless the splitter hardware is capable of very fast conversion rates (less than 1/25th of a second for each picture converted) it is not possible to capture moving images in colour – as they change at a rate of 25 frames per second. This is the case with the Vidi-RGB. If you wish to digitise colour images from your video player, it must have a perfect freeze-frame capability, otherwise you'll end up with a blurry mess.

So, instead of connecting your video signal to the Vidi-Amiga, connect it to the Vidi-RGB. Then connect the splitter output to the Vidi-Amiga. And also connect the Vidi-RGB to the joystick port (in order to control automatic splitting) and to the external power supply which is included in the package. In this way your video signal will be automatically split into its constituent RGB components each time you digitise an image.

The boxes themselves look simple enough – black plastic, with connector ports and two potentiometer controls on the rear of each unit. Not fantastically appealing to look at, but then that isn't what you bought them for. The potentiometer controls are for setting up the brightness and contrast on the Vidi-Amiga and the brightness and colour saturation on the Vidi-RGB.

Soft bits

Two disks come with the Complete Colour Solution, containing *VidiChrome*, *VidiGrab* and four utilities – *Display*, *ScreenSave*, *TimeLapse* and *Replay*. With this combination of software you can perform a range of tasks related to digitising and grabbing sequences of images, animate grabbed sequences, and save and load images and sequences. What you can't do with this lot is retouch your grabbed images. But don't worry – Rombo has also bundled *Photon Paint 2* in the

continued on page 66

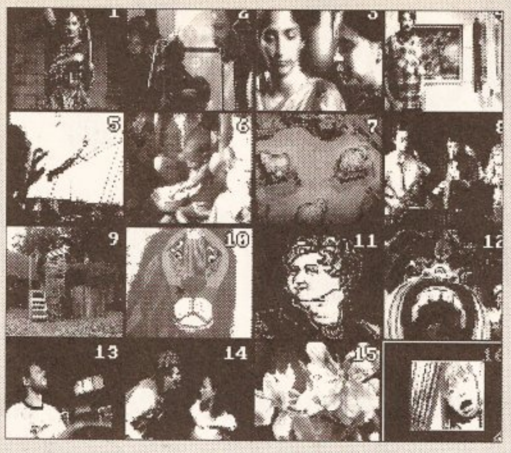
Tips for Better Digitising

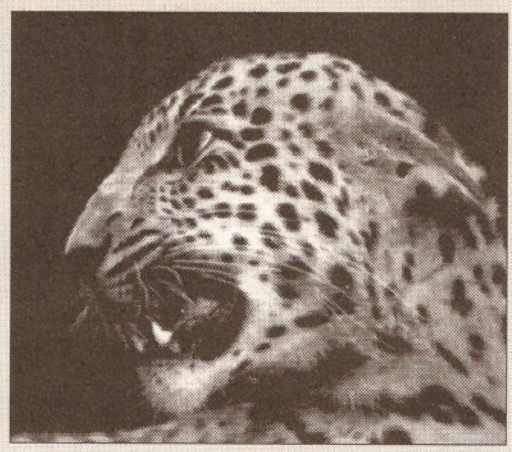
- **The better the quality of the camera, the better the results.**
- **Use plenty of light. And illuminate your subject as evenly as possible to avoid 'hot spots' and reflections. Daylight or fluorescents are better than ordinary light bulbs, which tend to appear yellowish when filmed.**
- **Use a copy stand or sturdy tripod to keep the camera steady.**
- **Keep cats, dogs and and curious humans out of the way to avoid them being damaged after they've walked through that perfect shot.**



Quality images can be grabbed, as the image above demonstrates.







continued from page 65

package, so you can mess your pix around with this old favourite HAM paint program.

I won't go into details of *Photon Paint 2*, as this has been much reviewed elsewhere in the past. But as HAM paint software goes, you should find it useful for fixing up minor problems with your grabs.



This image was a quick grab from an F-10 camera, using *VidiChrome*.

Both *VidiChrome* and *VidiGrab* can be used for digitising images, but where *VidiChrome* can grab static video images in 4,096 colours, *VidiGrab* specialises in grabbing and manipulating sequences of images in 16 shades.

Let's take *VidiChrome* first, as it's the simplest of the two to use. It's essentially used for grabbing single images as HAM pictures, then saving them off to disk for later use. As such, it forms the software interface between the hardware and the user. From the pull-down menus you can choose how you want to digitise your image (as separate RGB passes controlled manually or as automated RGB passes, with *VidiChrome* controlling the Vidi-RGB splitter). You can adjust the brightness and colour settings for the grab (to compensate for slight deficiencies in your lighting colour or camera characteristics), and you can even set up a window to grab a new image into – for instance, you could specify an area of the screen to which new images will be grabbed and have one image in the window and another on the rest of the screen. This is useful for special effects and other fancy graphics.

Other useful features include Merge functions (quick or slow) which are used to combine the three colour passes (R, G and B grabs) into one HAM image. Quick Merge is useful to ensure that you've shot the right thing and that its colours are OK, but it lacks crisp detail. Slow Merge gives you the detail, but takes a little longer to do. The Optimise function also present in the software will often give sharper edges and textures to an image by creating a new HAM palette from the current red, green and blue grabs and re-merging them into a new HAM image, using the new palette. You can also ensure that all your grabs conform to the same palette by loading in a preset palette and then re-merging the current grab – useful if you want to sequence the images in a display program without having any of the palette change problems which are normally associated with HAM images.

Quick pix

The next piece of software is *VidiGrab*, which allows you to grab moving images direct from camera or tape. Although it cannot grab every consecutive frame of live video (remember about the 25 frame per second stuff above?) and it only grabs in 16 grey scales (16 graduated tones ranging from dark to light) you should find a few novel uses for *VidiGrab*. Like *VidiChrome*, you can define windows to grab into. Interesting effects can be created where one sequence is superimposed over another. Within minutes I had six windows of grabbed sequences running simultaneously over a background sequence. If you don't mind the quality, this would be ideal for making fast and dirty pop videos!

Playback and grab speed can be set, images can be quantised (an image processing technique which basically reduces the number of colours in a picture) and sequences can be saved and loaded into other software. If you want to stop a frame of the grab being overwritten, designate it as a 'held' image. With the Carousel command, you can play back these 'held' images one after the other. The palette of the captured image can be changed to any one of nine presets or edited manually.

By using the Fast Grab option you can quickly select and grab just those frames you want, rather than using Autograb to fill the entire memory with grabs from the current incoming video signal. Brightness can be reset and you can see how it will affect your grabs right there on the screen. And when you've grabbed your set of frames, you can see them represented as small pictures on one or more pages so that you can quickly see exactly what you've got and choose any one to display simply by clicking on it.

You can also cut out any portion of an image and move it to another

BLITS & BOBS

The concept of RGB could be puzzling if you're a painter, since you would expect to have a colour separation of red, yellow and blue. But this does not work with light, where red, green and blue make white when mixed together at equal and maximum amounts.

JARGON BUSTING

COMPOSITE VIDEO: a video signal which includes chrominance (colour hue and saturation) and luminance (brightness) information all together in one combined signal.

DIGITISER: a device for converting information such as a video signal into a numerical (digital) form which can be understood and displayed by a computer. Sound samplers are also digitisers. Generally, some kind of software is also supplied to control the digitiser and manipulate the resulting images.

GENLOCK: a way of combining one video source (eg Amiga) with another (eg video tape) in order to synchronise their signals together to allow stable wipes, mixes and other effects including overlay (key) between the two sources.

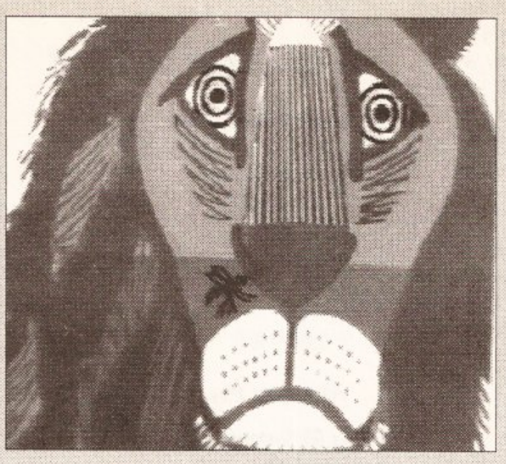
MIX (also referred to as DISSOLVE): where one image is gradually faded up across another which is fading down.

RGB: Red, Green and Blue. The three component colour images which make up a video picture and which, when combined together, produce a full colour picture.

SEG: Special Effects Generator, also referred to as a Vision Mixer. A piece of video equipment which allows video transitions and effects to be made – for example wipes, dissolves, keys and so on.

TRANSITIONS: these are used to change from one image to another by employing such effects as wipes, fades, cuts, teletypes and so on. In video, transitions are normally carried out using a vision mixer or Special Effects Generator (SEG).

WIPE: describes a visual transition between two images, where the edge of one progressively obscures or reveals the other.



On the left are a selection of images showing the power of Rombo's Complete Colour Solution. The image second from the left shows the 16-image display from which users can select frames to edit with the *VidiGrab* Frame Select command.

frame by using the Cut and Put commands. This allows you to change the order of your sequence or make new animations from existing material. You could move the whole image or just take part of it and paste it on to a new location. And it can all be done very quickly using the bottom bar menu.

Of the utility programs, *TimeLapse* will periodically grab a picture and save it to disk. Simply set the timing and brightness and then leave the equipment to it. Clouds, sunsets, plants growing – all that kind of stuff. *Replay* will load a grabbed sequence from disk and, guess what, replay it.

The number of images you can capture is limited only by the amount of memory you have available – for instance on my Amiga, which has 2Mb of RAM and 1Mb of Chip RAM, I was able to grab 62 frames. Where my problems began was when I started saving a sequence to disk. Instead of compressing the sequence into an ANIM-type file to save disk and memory space, each image is saved separately. And at between 40,000 and 60,000 bytes per picture in interlace mode, you'll only get about 20 on a standard disk. So small storage space isn't one of the strong points of this combination. You could always load files into *Deluxe Paint III* and compress them into an animation, which will save some space. But as each picture of a sequence will generally be quite different (at least in terms of relative pixel colours), overall you won't really save that much room.

Worth it?

The Complete Colour Solution will run with faster processors and all its software can be installed on to hard disk. If you want to have fun with digitising, the Complete Colour Solution will certainly interest you. It's easy to use and fast in action. And it's also capable of doing some pretty good serious work if you have the time and equipment necessary to get good grabs.

CHECKOUT
ROMBO COMPLETE COLOUR SOLUTION

Documentation..........8/10
Generally the documentation is good, if a little fragmented, throughout the three booklets provided. There are also plenty of handy hints included in the booklets to help novice image grabbers.

Speed 7/10
Grabbing images is fast and you can see what you're about to digitise on the Amiga screen, which makes it a lot easier to use than *Digiview*. The software is quick and easy to get around.

Ease of Use........... 12/15
Most of the software is simple to use, with both keyboard- and mouse-driven commands. The hardware is easy to control and requires little attention once set up. Being able to select ranges of frames for cutting and pasting would make editing sequences easier, though.

Hardware.............14/20
Reasonably sturdy construction, though the Vidi-Amiga I received (brand new) had a wobbly video input socket. There's also more than the usual amount of plugging-in to do to get the kit connected and it tends to clutter the desk up with wiring.

Software...............16/20
Pretty comprehensive in function, if not in resolution. Sadly for video makers no overscan mode is available. But there are lots of nice touches.

Price................ ......17/25
At £179 this Rombo combination is competitively priced in terms of features and speed. But it's only part of the equipment you'll need for digitising. The total costs could run to well over £1,000 if you had to buy a reasonable colour video camera and/or video deck.

AMIGA SHOPPER 74/100

As a relatively low-cost solution to digitising, the Complete Colour Solution certainly does its job and, judging by some of the demo images provided, is able to do it well. What matters most is what you feed it with. High-quality input will result in better quality grabs.

Lock it or lose it

G2 Systems is a British company with a long track record in producing equipment for broadcast graphics and video production. The company has been building equipment for the Amiga for some time, and its range currently includes domestic, industrial and broadcast quality genlocks and the VD2001 24-bit graphics card.

The VideoCenter Plus is the mid-range model in G2's series of genlocks for the Amiga. It combines genlocking of Amiga graphics over video with more advanced functions such as fades and wipes, making more creative effects available to enhance your video production.

Colour co-ordinated

As supplied, the VideoCenter Plus comes complete with all cables and its own power supply, although Amiga 1000 owners will have to exchange the remote cable as the pin-outs of its parallel port are different. The unit is quite large (18.5 inches long by 7 inches deep by 3 inches high), so plan on it taking up a fair amount of desk space. But it colour co-ordinates beautifully with the Amiga range. A disk of software is supplied which can control the machine from the Amiga keyboard and mouse, should you so wish.

There are inputs and outputs for both S-VHS and composite video signals, so the unit should suit most video users. There is also a composite Key Out signal provided – useful if you want to use an external SEG for key effects.

The Amiga is linked to the unit by a connector from the Amiga's RGB monitor output. The Amiga monitor can then be connected from the RGB Video Center Plus's output. The combined video and graphics signal is available from the video out connector, which can be fed to a video recorder or direct to a TV monitor for observation.

The controls

The VideoCenter Plus has three faders, five switches, a knob and a joystick. And here's a rundown of what they're all for:

Switch 1 – for switching between Amiga, video or combined Amiga and video output.

Fader 1 – cross fades between Amiga and video picture when Switch 1 is set to Amiga or fades the overlaid Amiga signal up and down when Switch 1 is set to Amiga Key.

Fader 2 – fades the entire output signal to and from black.

continued on page 68



Amiga videophiles may already know G2 Systems from the company's VideoCenter (left). The VideoCenter Plus is a new addition to the range of high-quality hardware.

continued from page xx

Fader 3 – used for setting the size of the wipe and/or causing a wipe transition to occur.

Knob – a rotary selector for selecting any one of ten available wipe patterns. The selection is fairly comprehensive, from circle and square to corners and centre wipes.

Switch 2 – selects Normal or Reverse for the wipe effect and is used to determine in which order the combined images are wiped over each other.

Switch 3 – selects Normal or Diagonal and is used to add another nine variations to the number of wipe patterns by changing the horizontal and vertical wipe edges to diagonals, causing the square wipe to become a diamond shape, for example. Only the circle wipe remains unaffected by this switch.

Switch 4 – defines whether the computer and video signals are keyed, wipe keyed or simply wiped when transitions are made. To explain this more simply, keying just superimposes the Amiga signal (minus its background colour) over the incoming video signal. Wiping is where one of the pictures replaces another, via a transition such as a circle. So then one picture would be seen through a circular hole in the other. And Wipe Keying is a combination of wiping and keying, where a wipe area can be defined to restrict any keyed signal to that area only. Simple, isn't it?

Joystick – used to set the position of a wipe on screen. For instance, a small box wipe could be set up and moved to allow a section of one picture to be cut through into the other picture.

Switch 5 – enables or disables joystick wipe positioning.

And finally, on the rear of the VideoCenter Plus is a dip switch which, unusually, allows the choice of key colour. So rather than being stuck with the usual Colour Zero (the 'background' colour) option, you can select between 16 key colours. This can be done either from the remote control software or by directly shifting the switches to the number of the colour which you want to use.

In use

I tested the VideoCenter Plus with a Panasonic F-10 camera and a domestic VHS player, and was impressed with the quality of the genlocking produced. The wipe edges are clean and sharp and all of the wipes looked good. The faders are smooth and positive, and the layout of the control panel is straightforward, making all the controls easy to get at and use. Even when using a domestic VHS player the quality was better than I would have expected. It would seem that the VideoCenter Plus can follow and encode even relatively poor quality signals well, which means that the build-quality of the circuitry is high – which, of course, you would expect from a company with the reputation of G2 Systems.

All the switches on the VideoCenter Plus are simple toggle switches, which means that there are only mechanical problems to worry about if they go wrong, and they are quick and easy to use, with a swift glance informing you exactly where they are all set. The joystick, which is used to position the wipe centre, stays in the position you put it in – no annoying drifting here – and the selector knob for the wipes really couldn't be easier to use.

And, unlike some systems I've seen, it is possible to reduce the size of the wipes right down to several pixels in size and still see that the edges are crisp.



The VideoCenter Plus adds wipes and effects to the basic model.

Remote control

If you prefer to operate the VideoCenter Plus direct from your Amiga, it is possible to do this under software control by connecting the genlock to the Amiga via the remote control cable supplied. Then, using the simple control panel displayed by the Controller software on your screen, and combinations of mouse, cursor keys and keyboard functions, you can control most of the functions of the VideoCenter Plus and add a couple more.

Although you cannot operate Cross Fade and Fade to Black simultaneously from the twin faders initially displayed in the control panel, you can access another panel to 'manually' do this from software. You can also set timed fades and trigger them by using the clock symbols in the fader panel, thus being sure that your transitions occur as and where you want them. It is also possible to select which of the Amiga colours will be the key colour and what mode the genlock is operating in (Amiga, Background, Amiga Key or Colour Key).

Personally, I prefer to do fades by hand when possible, but I have no doubt that the automatic fading and other functions available from the software will be of use to everyone who owns a VideoCenter Plus from time to time.

I didn't get the chance to test the genlock with an S-VHS system, so all I can assume is that since the composite side works well, then the S-VHS side should work even better. This may seem a bit of an off-the-wall statement to make, but as an S-VHS signal is superior to a composite one, and as G2 Systems' technicians obviously know that they are doing, S-VHS should be just fine through the VideoCenter Plus. But if you are in doubt, give the box a test run first if you are looking for a new genlock for your S-VHS system. AS

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VideoCenter Plus.........£995 + VAT

by G2 Systems
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Surrey
GU9 7DY
☎ 0252 737151

Checkout VideoCenter Plus

Documentation..........9/10
The supplied manuals cover everything you need to know, and all the necessary explanations and a troubleshooting guide are included.

Ease Of Use............17/20
After it's connected up, the VideoCenter Plus is very easy to use; you'll soon become familiar with the simple layout of the controls and their functions.

Software.................7/10
Straightforward and to the point, even though it's as easy to use the unit manually as by remote control from software.

Hardware...............17/20
A well-designed genlock which co-ordinates with the Amiga colour scheme (if that's important to you), is well finished and appears to be durable. If the electronics of the unit are as solid as its shell, then this box should take the knocks and last for years. A little on the large side, though, which may be its only disadvantage.

Quality................ ..17/20
I couldn't really find anything to complain about with this well-built, solidly constructed piece of equipment. It performs as well as some 'broadcast quality' genlocks which I have tested.

Price.................. ....15/20
At £995 + VAT the VideoCenter Plus is certainly not a cheap solution to genlock problems, but it does reflects the high quality of the equipment and the facilities which it contains.

AMIGA SHOPPER 82/100

VideoCenter Plus does exactly what it sets out to do – that is, to genlock Amiga graphics with a video signal and produce effects for mixing and wiping between the two sources. As I always say, you gets what you pays for. And you *do* gets what you pays for with the VideoCenter Plus.

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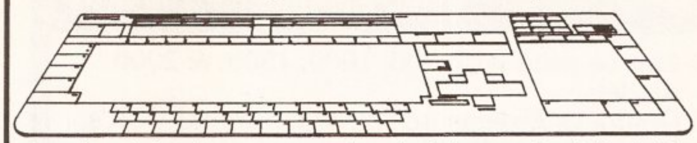
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Getting the message

Part three of our C programming tutorial introduces methods for your program to handle user input, which can come in the form of keystrokes or mouse clicks

"So far in this series, Sam Littlewood has described the basic concepts of *ADraw*, a structured drawing program written in C, and has created some screen scenery to make it look as if it should work. In this month's instalment, Sam focuses on the connections behind the scenes to wire the user's mouse clicks and key taps to bits of code."

Jeff Walker

The internals of *ADraw* have to be of a very different type to those of an an old style CLI-based program.

An old style program very much controls the user, asking him or her for information when it wants and complaining vociferously when things are given in the wrong order or the wrong format. The internals of these programs tend to be one long thread starting at main() and winding up at an exit() somewhere – on the whole, things are fixed in a definite, preordained order.

However, our nice friendly Intuition program has a bit of a problem – users can drag things around and click on gadgets whenever they see fit, possibly in some weird order that is quite sensible to them but undreamt of by the programmer. The actions of the user are sent by Intuition to *ADraw* as a series of messages, including information about what, when and where the user did whatever they did. *ADraw* replies to these messages as soon as possible and then carries out an appropriate action.

There are two important aspects to handling Intuition messages:

1. Responding to messages quickly so that the user gets some feedback about what is going on. If the average user clicks on a button and nothing happens, then they tend to click on it a few more times to make sure. This is a recipe for serious confusion, especially if the particular button invokes some long-winded or irreversible action.

2. Allowing any reasonable sequence of messages. If somebody is halfway through drawing some shape, then they could well want to scroll the window around a bit, zoom in or out, or peek in another window. If, once a shape is started, *ADraw* ignores all the messages except those needed to finish the shape, then once again confusion will reign as clickable gadgets refuse to have any effect whatsoever.

To cope with these two points, most Intuition programs tend to be a short loop consisting of: *Wait for the user to do something; Find out what happened; Run a short piece of code particular to that action; Go back to waiting.*

LINE BREAKS

Because of our narrow column width, we have to split some program lines over two lines in the magazine. Any lines so broken, which should be entered by you without a line break, will be shown by this symbol: ↲

Waiting room

The implementation of the above loop in *ADraw* is the function EventLoop(), shown in Listing 1.

The 'for(;;)' can be read as `for ever' – there is no condition to test for the loop finishing, so it just carries on looping ad infinitum.

Within this loop, the first action is to wait for something to happen in one of the *ADraw* windows. All the *ADraw* windows were set up to use the same rendezvous point or message port. A global variable, ProjectPort, points to that port, which was built using the standard function CreatePort(). Message ports accumulate outstanding messages and set a signal to say something has arrived. Since there is only one port of interest, there is only one signal: ProjectPort->mp_SigBit.

The exec.library function Wait() needs an argument that has a bit set for each signal number which is of interest. This argument is arrived at by shifting '1' left by the signal number. Once *ADraw* calls Wait() it will not use up any more processor time until a new message arrives in one of the windows, at which point Wait() returns and *ADraw* can start making itself useful.

Once the Wait() has returned, *ADraw* knows that something has arrived at ProjectPort. It is quite possible that more than one message has arrived – a little bit of serious mousing and clicking can result in several messages being stacked up for a program to process before it has even got a chance to wake up and realise that anything has happened at all. EventLoop, once woken up, will try to consume all outstanding messages before going back to sleep.

The exec.library function GetMsg(), given a message port, will unhook the next message from that port and return a pointer to it. If there are no messages waiting then it simply returns NULL.

Each message occupies a chunk of memory. These chunks are allocated by Intuition as things happen on screen and are added to the pending messages on the appropriate port. The pending messages are now outside Intuition's control until a program deals with them and replies using ReplyMsg(). Only when a program has replied to a message does Intuition knows that it can release the memory block containing the message.

This, of course, can lead to a potential problem. If a program is somewhat slow in replying to

continued on page 72

LISTING 1

```
/* EventLoop
 *
 * The core Intuition event loop
 *
 * Process messages and call the current
 * event handler for the appropriate window.
 */
void EventLoop(void)
{
  struct IntuiMessage *intmsg;
  struct IntuiMessage intmsg_copy;
  struct UserWindow *uw;
  for(;;) {
    /* Wait for something to happen on any of the ADraw windows
    */
    Wait(1 << ProjectPort->mp_SigBit);
    /* handle any waiting IntuiMessages...
    */
    while((intmsg = (struct IntuiMessage *)↲
GetMsg(ProjectPort)) != NULL) {
  /* Make a copy of message for use by event handler and reply
     * to original message. This copies a complete structure
     */
     intmsg_copy = *intmsg;
     ReplyMsg((struct Message *)intmsg);
     /* Work out the corresponding UserWindow structure
     */
  uw = (struct UserWindow *)(intmsg_copy.IDCMPWindow >UserData);
    /* Pass copy of message on to current handler for window
    */
    (*uw->event_handler)(uw,&intmsg_copy);
   }
  }
}
```

LISTING 2 ● LISTING 2 ● LISTING 2

```
for(;;) {
  Recieve new messages
  Process normal messages
  ...
    Decide a requester is necessary
      Start requester
      while(Requester active) {
        Recieve new messages
        Process messages for requester
      }
      End requester
}
```

continued from page 71

messages and the user is on a roll, then Intuition will be grabbing more and more chunks of memory to contain all the new events generated by the user, but it will never free them since the recipient program does not reply to say that it has finished with the messages. In this direction waits the distinctly user-hostile red flashing box, and endless frustration for the innocent user.

The solution is for *ADraw* to reply immediately to each message, pausing only to make a local copy of the whole message structure in the local variable intmsg_copy.

Doing the business

Having made this private copy of the message, something needs to be done about it.

The first thing is to find out which window it came from and to work out the corresponding UserWindow structure. Each window has one of these structures, containing all the information about that window which relates to *ADraw*, rather than Intuition. The Intuition window pointer is in the message field 'IDCMPWindow'. Intuition window structures have one pointer in them that is reserved for use by users; for *ADraw* this points at its own UserWindow structure.

This pointer, UserWindow, along with a pointer to the local message copy, is passed to a handler for the window. Rather than calling a function directly, there is a pointer to the current window handler added to the UserWindow structure. This requires us to create a new type:

```
typedef void ↵
(*EVHandlerType)(struct ↵
UserWindow *uw, struct ↵
IntuiMessage *im);
```

EVHandlerType is the type – a pointer to a function taking two arguments that returns void.

Complex declarations like this in C are best read from the inside out, starting at the name. In the same way that operators in expressions have precedence, the declarators *, [] and () have precedence in declarations. In particular, the array and function declarators, [] and () have a higher precedence than the pointer declarator *. This can be applied to a simpler declaration:

```
int *test();
```

Starting with the name (test), reading can either go left or right – 'test is a pointer to...' or 'test is a function returning...'. The () declarator has higher precedence than *, so in this case we go to the right – 'test is a function returning...'.

The only way to go now is to read the * – 'test is a function returning a pointer to...'.

Finally, the base type on the left is added – 'test is a function returning a pointer to an int'.

When the precedence does not give the required answer, brackets can be added to force the order:

```
int (*test)();
```

This reads: 'test is a pointer to a function returning an int'.

If the word typedef is added to the whole thing, then instead of creating a variable of the combined type, a new type is created, representing the whole thing:

```
typedef int (*test)();
```

This reads, 'any variables declared as being of type "test" will be pointers to a function returning int'.

Finally, to give the compiler all the information about what is going on, the particular type of arguments can be given inside any 'is a function' brackets:

```
typedef int (*test)(int a);
```

This reads, 'variables of type "test" will be pointers to a function taking one int argument and returning int'.

This is a similar to the type *ADraw* uses to point to a window's event handler. Within each UserWindow structure is the member event_handler:

```
EVHandlerType event_handler;
```

When the event loop wants to actually call the currently referenced function, it takes what is pointed to by the pointer (in brackets), and calls it with the appropriate arguments:

```
(*uw-
>event_handler)(uw,&intmsg_ ↵
copy);
```

All this complication to get from one bit of *ADraw* to another does have a use. For most of the time the user is clicking, dragging and typing in windows, events arrive, they are handled in the same sort of way and the event_handler member of UserWindow points at the normal case event handling function, called NormalWindowHandler. But there is one big exception to this: Requesters. These come in to play when the user has to do something before *ADraw* can continue. Examples of this are giving filenames for loading and saving files, or confirming to the program that some drastic action is actually a good idea.

When *ADraw* decides it needs to put up a requester, it fills in some structures and then calls Intuition, asking it to display a Requester over the current window. Intuition puts the request box in the window and then suspends all messages from the base window, replacing them with messages relating to the Requester. Once the user has clicked OK or CANCEL, *ADraw* can then clear away the Requester.

If a program is only going to manage one window, then it can be sure that while a requester is in that window the only messages arriving will be those about the requester. In this case the message handling loop for the Requester can be nested within the normal message loop – Listing 2 shows the general idea.

ADraw, however, can manage several projects in several windows. While one window may be blocked by a requester, it is possible that the user may switch to another unblocked window and continue work – checking that the drastic action in the first window will not wipe out something unexpected, for example.

When *ADraw* needs to use a Requester, it starts it in the appropriate window and then changes the event_handler function pointer to reference an event handler suitable for that type of Requester. Having done that, it falls back round to the main loop in EventLoop().

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LISTING 3 ● LISTING 3 ● LISTING 3 ● LISTING 3 ● LISTING 3 ● LISTING 3 ● LISTING 3 ● LISTING 3

```
/* NormalWindowHandler
 *
 * Intuition event handler normally attached to windows
 */
void NormalWindowHandler(struct UserWindow *uw, struct ↵
IntuiMessage *im)
{
    UWORD code;
    struct MenuItem *mitem;
    switch(im->Class) {
    case CLOSEWINDOW:
    /* System close gadget was hit - Get rid of this window
         */
        QuitWindow(uw);
        break;
    case MENUPICK:
        /* One or more menu items have been selected
         *
    * Walk through all selected items calling menu handler
         */
        /* Loop starting at the current menu item
         */
        code = im->Code;
        while(code != MENUNULL) {
            /* Work out address of this menu structure
                 */
                mitem = ItemAddress(Menus, code);
                /* Deal with this item
                 */
                HandleMenu(uw,mitem,
MENUNUM(code),ITEMNUM(code),SUBNUM(code));
                 /* Get the next selected item (if any)
                 */
                code = mitem->NextSelect;
            }
            break;
        case GADGETDOWN:
                HandleGadget(uw,(struct Gadget *)im->IAddress);
                break;
        case NEWSIZE:
                            UpdateDrawArea(uw);
                            UpdateSliders(uw);
                DrawWindow(uw,FALSE);
                break;
        case REFRESHWINDOW:
                DrawWindow(uw,TRUE);
            break;
        }
}
```

continued from page 72

Now, all the messages arriving for the blocked window are fed to an appropriate piece of processing code, but the other windows – whose event_handler pointers are normal – are dealt with as before.

When the special Requester event handler works out that the user has selected OK or CANCEL, it tidies up, does what the user asked, and then sets the event_handler pointer back to referencing the normal handler as before.

Listing 3 (page 72) shows what the normal event handler looks like. This holds very few surprises: im->Class describes the type of message to be processed. For example, if the user tries to close the window, then *ADraw* follows through, removing the window from the project and closing the Intuition window.

Menu handling

Menus need more care. Having set up the Menu data structure and used SetMenuStrip() to attach it to a window, Intuition will send MENUPICK messages whenever menus are used.

There are two complications. First, if the user presses the right mouse button but does not select anything, then a MENUPICK message is still generated, albeit with a code of MENUNULL. Secondly, it is possible to select more than one menu item at a time by keeping the right button held down while clicking the left button on various items.

In the first case, having dug the code out of the message, the 'while(code != MENUNULL)' loop will never execute. In the second case, the NextSelect member of the menu item structure holds the code for the next item, if any, to be processed. The while loop, having processed one item, fetches NextSelect and has another go on the new code value.

For each selected item, HandleMenu() is called, given useful pointers and also useful numbers. These useful numbers are extracted using macros provided in intuition/intuition.h and give the indices of the Menu (along the top), the Item (down) and the SubItem (down again). HandleMenu() is a large set of nested switch statements on each of these numbers in turn – #defines are used to make things slightly more readable, as can be seen in Listing 4.

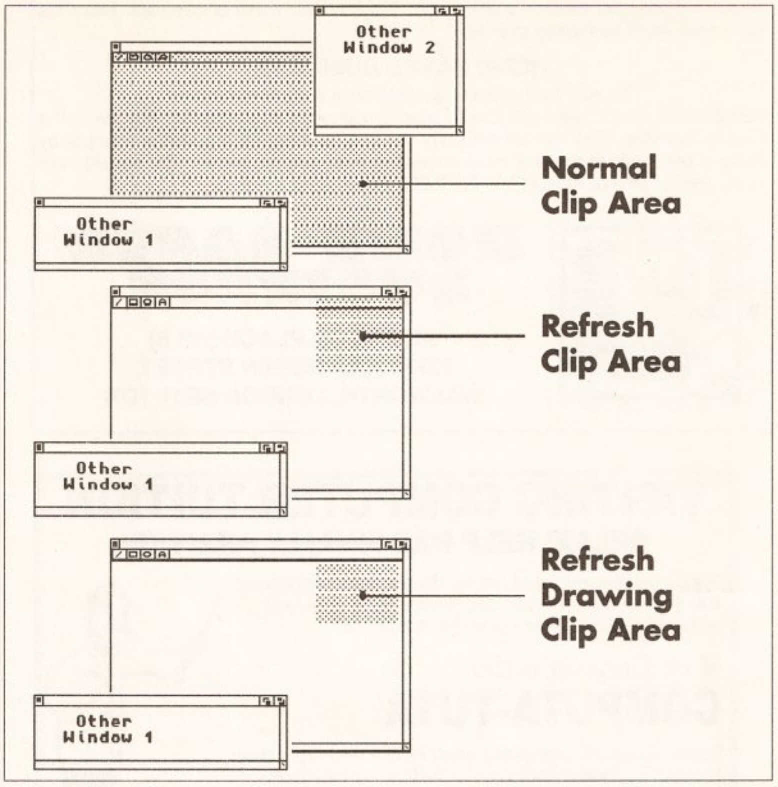
Refreshing

There are two basic sorts of Intuition windows: SIMPLE_REFRESH and SMART_REFRESH.

SMART_REFRESH windows are the easiest; when a program draws into them, Intuition remembers what was drawn, even if part of the window is covered up at the time. If a SMART_REFRESH window is uncovered, Intuition simply restores what it has remembered to the screen and does not bother the application involved at all. The down side of this is the extra Chip RAM needed to remember all the hidden portions of windows on the screen.

The other type of window, SIMPLE_REFRESH, requires the program to be somewhat more intelligent. Intuition does not bother remembering the hidden parts of SIMPLE_REFRESH windows. When the user does some rearranging and some previously hidden part of a window is now visible, Intuition wakes up the associated program and tells it to re-draw this new area.

ADraw uses a SIMPLE_REFRESH window; when it gets the REFRESHWINDOW message from Intuition, it has to go through a rather strange sequence of operations to fulfil the request.



The layers library restricts graphics to parts of the screen (see main text).

When a program draws into a window, various bits of the Amiga operating system ensure that the drawn graphics only appear in that window. There is no physical barrier at the edge of the window – display memory is just display memory after all, and a low level program could quite happily scribble all over the screen with no regard for windows at all. By going through the operating system, the graphics drawing functions pass through the 'layers' library. This library manages funny shaped bits of screen, and restricts graphics operations to those areas.

The layers library deals with rectangles, which would appear to be a bit off the mark when one considers the exposed area of a rectangular window with some other windows overlapping it a little bit, as shown at the top of the illustration on this page. All the graphics in the partially covered window must be restricted to a rectangle with bites out of it. Fortunately, the layers library can deal with slicing rectangles up, so it would clip the graphics to the base rectangle minus the rectangles for the other two windows.

In the particular case of refreshing, the layers.library, via Intuition, can be told to restrict the graphics to only that part of the window which must be redrawn – as in the second set of windows in the

continued on page 76

LISTING 4

```
/* Numbers for menus across menu bar
 */
#define MENU_PROJECT     0
#define MENU_EDIT              1
/* Numbers for items down the Project menu
 */
#define MIPROJ_NEW             0
#define MIPROJ_CLONE     1
#define MIPROJ_OPEN            2
#define MIPROJ_SAVE            3
...
/* HandleMenu
 *
 * Perform an action associated with a menu item
 */
void HandleMenu(struct UserWindow *uw, struct menuItem
*mitem,
        UWORD menu_num, UWORD item_num, UWORD sub_num)
{
        switch(menu_num) {
        case MENU_PROJECT:
                switch(item_num) {
                case MIPROJ_QUIT:
                        QuitWindow(uw);
                        break;
                case MIPROJ_NEW:
                        NewProject(uw);
                        break;
                case MIPROJ_CLONE:
                        CloneWindow(uw);
                        break;
                case MIPROJ_OPEN:
                        LoadProject(uw);
                        break;
                case MIPROJ_SAVE:
                        SaveProject(uw);
                        break;
                ...
                }
                break;
        case MENU_EDIT:
                switch(item_num) {
                        ...
                }
                break;
        }
}
```

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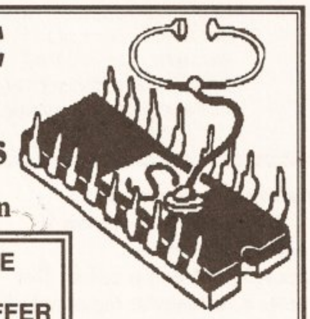
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LISTING 5 ● LISTING 5 ● LISTING 5 ● LISTING 5 ● LISTING 5 ● LISTING 5 ● LISTING 5 ● LISTING 5

```
/* DrawWindow
 *
 * Bring the graphics in a window up to date
 */
void DrawWindow(struct UserWindow *uw,int refresh)
{
    struct Region *old_region;
    /* Draw graphics not in draw area
     */
    if(refresh) {
        BeginRefresh(uw->window);
        RenderDrawAreaBorder(uw);
        EndRefresh(uw->window,FALSE);
    } else
        RenderDrawAreaBorder(uw);
    /* Draw graphics inside the draw area through an ↵
additional region
     */
    old_region = InstallClipRegion(uw->window->WLayer, uw- ↵
>draw_region);
    if(refresh) {
        BeginRefresh(uw->window);
        RenderProjectWindow(uw);
        EndRefresh(uw->window,FALSE);
    } else
        RenderProjectWindow(uw);
    /* Restore old regions
     */
    InstallClipRegion(uw->window->WLayer, old_region);
    /* Dispose of any damage list
     */
    if(refresh) {
        BeginRefresh(uw->window);
        EndRefresh(uw->window,TRUE);
    }
}
/* RenderDrawAreaBorder
 *
 * Draw a border between the tools and the draw area
 */
void RenderDrawAreaBorder(struct UserWindow *uw)
{
        struct RastPort *rport = uw->window->RPort;
        SetAPen(rport,1);
        SetDrMd(rport,JAM1);
        Move(rport,uw->draw_rect.MinX,uw->draw_rect.MinY-1);
        Draw(rport,uw->draw_rect.MaxX,uw->draw_rect.MinY-1);
}
```

continued from page 74

illustration, where 'Other Window 2' has disappeared.

To start this operation, BeginRefresh() is called. Once the update has been done, EndRefresh() must then be called. In addition to the Intuition window pointers passed to both functions, EndRefresh() is given a Boolean argument. If this is FALSE then the refresh clipping information is not thrown away, and some more graphics can be drawn later, bracketed by another BeginRefresh() ... EndRefresh() pair.

It is important that the last set of calls pass TRUE to EndRefresh() so that the refresh clipping information is thrown away, otherwise memory will start seeping away. This remains true even when nothing is to be drawn – the system must still be told to toss out the now unwanted information. Study Listing 5 to see how all this works.

Setting up the clipping region is not all that *ADraw* needs to do. There are two sorts of graphics it needs to update: the main view of the current drawing and any decorative detail around it. Intuition will have already handled the refreshing of gadgets. The incidental detail is simply a line separating the tools from the main draw area.

A function called RenderDrawAreaBorder() draws this incidental detail; for refreshing this is simply bracketed by BeginRefresh() ... EndRefresh(), and the clipping information is retained.

The main drawing may well have graphics in it that would, if unclipped, go right outside the window, or at least into bits of the window that should not be drawn into, like the tool gadgets. To solve this, the layers.library is called upon directly to further restrict the clipping area with a rectangle that just covers the area in which the project graphics should appear.

When a project window is created, the function UpdateDrawArea() is called. This creates a rectangular region which fits nicely inside the window, giving room for all the gadgets around the edge. A pointer to this rectangular region is saved in the UserWindow structure.

When the time comes to refresh the draw area, this region is installed in place of the window's normal bigger clip region – the old region is remembered for later. BeginRefresh() is then called to further restrict the clipping to just the project draw area that needs refreshing. The current view of the project that the window is attached to is drawn, EndRefresh() is called, and the old region restored.

All this high-level control of drawing into a project window is wrapped up in DrawWindow() in Listing 6. It takes a Boolean argument, refresh, that says if this is a screen refresh or a complete update, such as when a window is first opened.

ADraw allows windows to be re-sized, but most of the work has been handled already – UpdateDrawArea() must be called to calculate a new clip region for the graphics, and the horizontal and vertical sliders need to be updated so that the size of the slider represents the size of the visible part of the project. Finally, the project is re-drawn to include any new areas around the edge. **AS**

LISTING 6 ● LISTING 6 ● LISTING 6 ● LISTING 6 ● LISTING 6 ● LISTING 6

```
/* UpdateDrawArea
 *
 * Work out where in the window the main draw area is, and construct
 * a region for it
 */
void UpdateDrawArea(struct UserWindow *uw)
{
        /* Throw away any existing region
         */
        if(uw->draw_region)
                DisposeRegion(uw->draw_region);
        /* Work out the new rectangle
         */
        uw->draw_rect.MinX = uw->window->BorderLeft+1;
        uw->draw_rect.MinY = uw->window->BorderTop+TOOL_BUT_HEIGHT+2;
        uw->draw_rect.MaxX = uw->window->Width-uw->window->BorderRight-1;
        uw->draw_rect.MaxY = uw->window->Height-uw->window->BorderBottom-1;
        /* Construct a new region
         */
        uw->draw_region = NewRegion();
        /* OR the above rectangle into the previously empty region
         */
        OrRectRegion(uw->draw_region,&uw->draw_rect);
}
```

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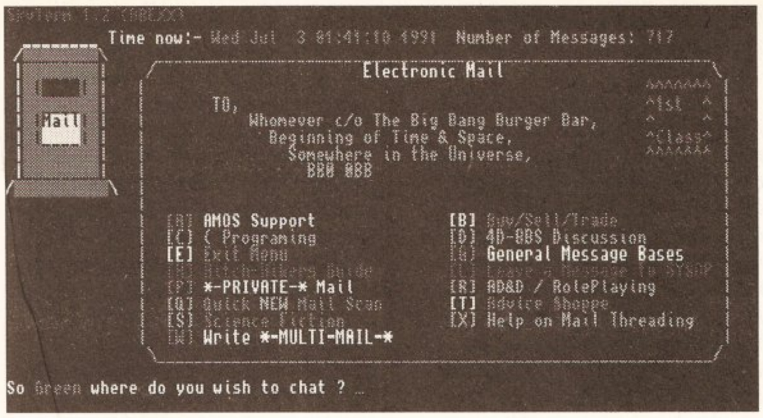
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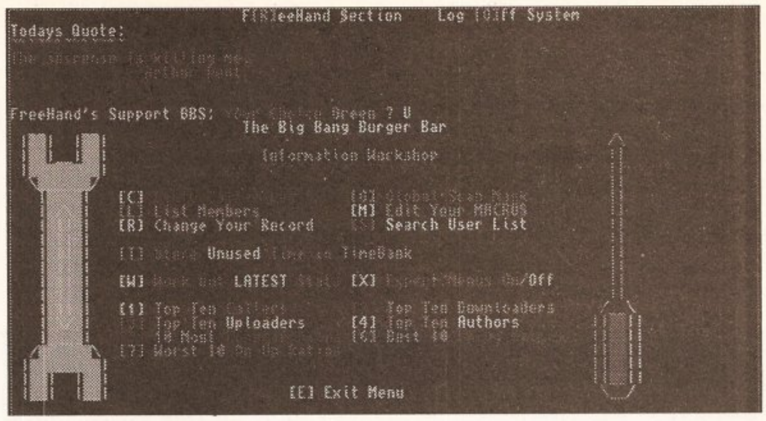
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Nick Veitch investigates some of the most popular – and oddest – bulletin boards around

The wonderful thing about bulletin boards is that even though they run on similar machines – and often even using the same software – they are all distinctive in one way or other. This distinctiveness manifests itself in many ways: the fancy ANSI graphics on the menu pages, the lively chat areas, or maybe even the special interest groups like motorcycle maintenance, dwarf baiting, young Conservatives (not very popular that one) or mango fancying.

Let's face it, you have to be a bit mental to devote so much time, effort and money to running a BBS, and this manifests itself with flagrant abandon in the login messages, menu items and subgroups within each system. It is not unusual for sysops on a conference meet to find themselves sharing a hotel with a group of psychiatrists.These poor specimens of humanity, the sysops, need our help. The best therapy is to let them play out their fantasies by ringing in to their boards.

What makes a board worth logging on to? It must have loads of files, lots of members, lively chat areas and lots of flashy graphics. Or must it? Well, no. The most important thing is character. Logging on is like going on a timeshare holiday in the electronic realms of the host system. There should be things to do, stuff to look at and lots of interesting/nice/groovy/mad people, but above all you should find it comfortable.

It could be an old shack on the bend of a river, something your old man handed down, could be a place you built on your own, everyone's gotta have someplace they call home. *(What – Roger Waters quotes in Amiga Shopper? ed.)* The same is true of BBSs. Everyone has one they like best, where they feel most comfortable. Good hunting, but to start you off here are a few of my favorites, each of which is, in its own little way, unique.

Big Bang Burger Bar
Number: 081-420 6356
Location: London
Sysop: Zarniwoop

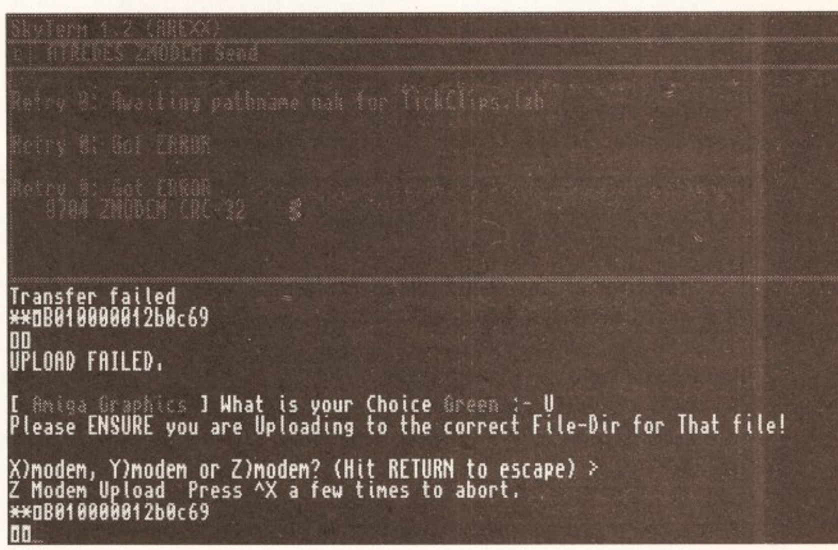
Space is big. Really big. You might think it's a long way... woah, halfway through a *Hitchhiker* quote and you forget the rest? Your mother burnt all your Douglas Adams books? Belgium man, grab your towel and call up the Big Bang Burger Bar, the concession stand at the beginning of the universe, where all the hoopy froods hang out. *(Hey, this isn't Amiga Format! – ed.)*

This is where you will run into Zarniwoop, a sysop with a mission. It's just a shame nobody knows what it is. The extensive message bases are packed with everything nobody ever wanted to know about *Star Trek* and *Hitchiker's*, amongst other things.

This is one of a couple of boards running new software called *4D*, from Freehand. Time was when you only ever saw *Paragon* boards (on the Amiga), but now there's all sorts. Does this mean that the Amiga is really taking off in the comms consumerplace? I rather think it does.

In amongst the other things on the Burger Bar are a great wealth of files to download, including a lot of the very latest, wickedest, silliest demos. The BBS has 330Mb of on-line storage, and nearly all of it is Amiga specific, so you're bound to find something or other which takes your fancy here.

The flamboyant messages and menus, the embedded Hikerisms and the incredible Zarniwoop himself somehow make logging on regularly as necessary as insulting a Nutrimat machine.



Remember, uploading files is just as important as downloading them.

Oddball
Number: 081-679 2583
Location: London

In the comms world there is nothing unusual about being unusual, so what's special about a board called Oddball? Well, just a few things. First, it is one of the few boards to be running *Skypix* software. Jolly good. So what, exactly, is *Skypix*?

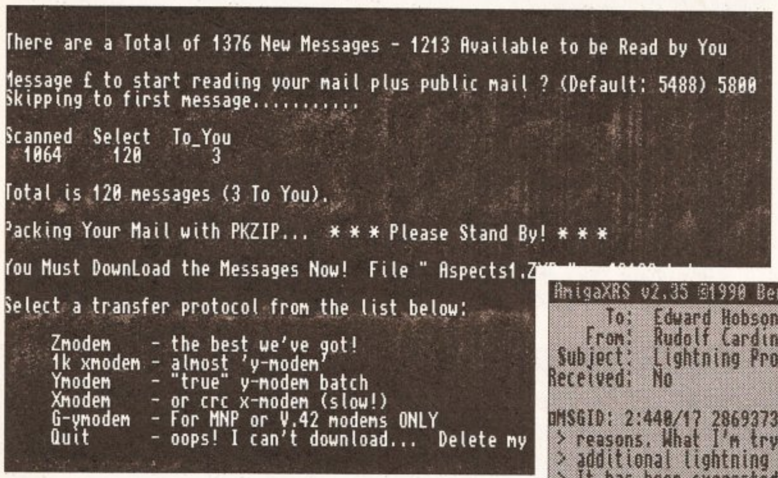
continued on page 80

continued from page 79

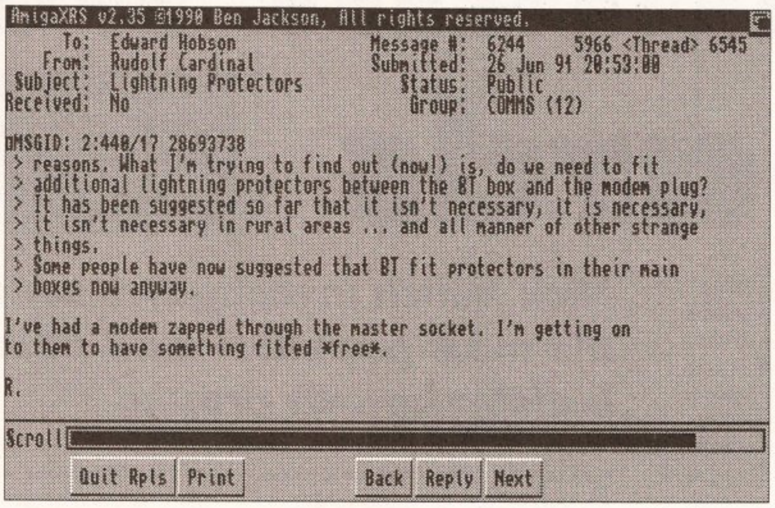
Well, some time ago some cunning chappies had the idea that you might not only want to send text down the phone but graphics as well. A *Skypix* board will send commands to your terminal giving it drawing instructions with the aid of pre-saved brushes stored in your BRU: directory. Yes, I know you don't have one, but when the host discovers that it is using a brush you don't possess, the brush is downloaded automatically and stored in the BRU: directory. It might be an idea to assign this logical device to RAM: for speed of access while you are actually using *Skypix*, then copy the files to a floppy or hard disk when the session is over. Then it is a simple matter to copy them all back into ram before you log on for your next session.

There is something very strange about playing chess with someone you've never met or seen before. Especially when you do it down the telephone line. Especially when the pieces pop up in full colour on your screen. I know you could do away with all the technology and just play by mail, but there is something decadent about dialling up at 1.30am to see what the devious bugger at the other end of the modem has done. It also makes a great difference being able to point and click with the mouse instead of the usual keyboard fever.

That is just the tip of the asparagus of what *Skypix* can do. For a mind-blowing demonstration, just log in and take a look around the games section. You will need to be using comms software which supports *Skypix* – like the *Skyterm* software.



Above: Mail being packed for reading off-line.



Right: An off-line reader in action.

Skypix is an extension of the ANSI standard and is only available for the Amiga. Remember, only the Amiga makes this possible...

Aspects

Number: 061-792 0260
Location: Manchester
Sysop: Dave Gorski

Dave Gorski is just about one of the nicest guys you could meet. No wonder, then, that he is a sysop, and indeed sysop of one of the most interesting boards around. Aspects is vast. Truly vast.

A lot of people seem to think that Amiga owners will get a lot more benefit from an Amiga-only BBS than one which spreads its resources around a number of different machines. Not so. Yes, you may find that an Amiga-specific board will have more Amiga messages, more Amiga files and more Amiga happenings on it. But a lot of the interesting things that go on on BBSs around the country aren't Amiga-specific. Leaving technical things aside, there is a lot of common ground between the users of all machines who regularly take to the phone lines. For example, there are things like music, sport, beer, C programming and even comms itself. There are interchangeable format pictures and sound samples. And (as the saying goes) lots, lots more.

That said, the Amiga SIG (special interest group) on Aspects is pretty huge anyway, and home to some of the liveliest debates. A lot of Echo mail goes through here – there is even the chance to leave messages for magazines like our sister publication, *New Computer Express*!

Aspects is one of the boards in this country that supports the XRS off-line mail reader system. Having selected the message areas you are interested in, the host machine will then go and round up all of the relevant messages into a packet for you to download. The host performs packing while you wait, and will usually give you a choice of packing methods. Remember, though, that it is the host machine that performs the packing while you are on-line, so choose the packing method that will run fastest on that machine.

Having downloaded the packet, you must first unpack it using the relevant routine (*LHArc*, for example). Then simply copy it into the directory where your copy of XRS is and and away you go. When run, XRS will automatically detect the presence of the mail packet, so there is no fiddling around with requesters and little chance of you getting lost.

The messages will be displayed in their relevant topic groups, so you can sift through them in any way you like and make your replies at leisure. Not only does this cut down your phone bill but it also allows others more time on the board.

Yukon Ho!

Number: 0232 768163
Location: Belfast
Sysop: Mark Kerr

One of the things that few people have the time to play but which are really good fun are multi-player, on-line games, sometimes known as 'doors'. There is reality and there is the surreal and in between are the doors. *(Not exactly the right quote, but it'll do – ed.)*

An on-line user's guide

For whatever reasons, there is a lot of macho posing on BBSs and it never pays to leave yourself open to scorn and ridicule. Here, then, are a few salient guides to making yourself appear more of a seasoned comms fiend.

• DO NOT USE 'CAPSLOCKOVISION'. For some reason, many first-time punters get the idea that unless they use caps all the time, they won't get their message across. Caps should ONLY be used for emphasis.

• REMEMBER THE SMILEY CODE. You will see a lot of smileys dotted about messages from more experienced comms users. Here are a few of the more common ones and their generally accepted meanings (turn your head 90 degrees to the left if you don't see why they are called smileys):

:-) plain smiley indicating pleasure.

B-) Supercool smiley with shades on

:-| Undecided

;-) Say no more...

:-] A forced grin

±-) Oh dear, I had too much to drink last night

=) baby smiley

• There are generally no italics on BBSs. For emphasis, put the *important* word between asterisks. The asterisk protocol is also used for stage and sound effects such as *sigh* or even *grin*.

Donations

These are hard times, so they tell us, and some of the people who are feeling the squeeze are the people who have spent all that time and effort building a board that's worth logging on to.

There's an awful lot of money tied up in an expensive modem, an extra phoneline and a sizeable hard disk. Money which comes from where? Well, mostly from the sysop's pocket. Is it fair that these people should bear the burden from which we all benefit? No, not really.

Many sysops are now open to financial coercion. The money raised won't disappear into a pint glass, it will enable them to keep on providing a priceless service and possibly help to pay for some new kit to make everybody's life a bit more bearable. Next time you are in a games shop or writing out a cheque for some mail-order arcade conversions, think about where your money could be better sent for the good of all Amigakind.

Jargon Busting

Door – these are plug-on software modules for the host machine which allow the users to run a piece of software (usually a game) through the BBS.

Echo – a messaging area in which the messages and any reply you make are echoed around connected boards. Thus a message posted in an echo on one board will turn up later all over the place.

SIG – a Special Interest Group. In order to make it easier to access related files and messages, many BBSs group them into SIGs. You can then select to join areas of interest to you without having to wade through a pile of stuff you couldn't care less about.

Towel – an invaluable piece of equipment. You can hold it, chew on it, hide behind it and even dry yourself off with it. Don't leave home without one.

Troughers – a derisive term used to describe people who ring up BBSs merely to download as many files as possible without ever bothering to post messages or upload anything.

One of these games to be found on Yukon Ho is the excellent Kastles and Katapults. It's a sort of extension of the old king classic (Klassic?), with you battling it out with a neighbouring king played by the host computer. Various nefarious and underhand tactics can be used to force submission but it can be a tough old slog. There are plenty of other games online, including a few of the multi-player trading types. These usually work out quite a bit cheaper than you might think because you can log in, use a script to play your moves and then log back out again.

It isn't all fun and games over at Yukon Ho though. There are plenty of interesting message bases and a very active file section with a large proportion of a 330Mb hard drive filled with useful software. Much of the stuff comes direct from the States, and is often up on Yukon Ho a matter of days after it appears on boards across the atlantic.

Guru-10

Number: 0324 665862
Location: Scotland
Sysop: Simon J Cansick

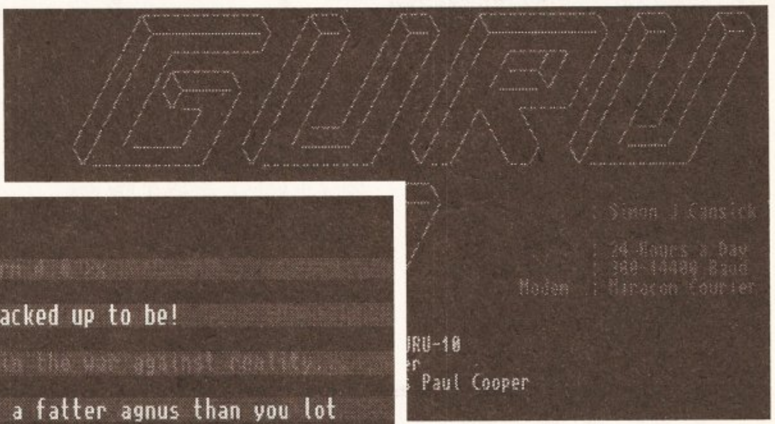
Guru-10 is a very new board, but it is a testament to the ever expanding comms world that it is already very active. All the bones of a very decent BBS are there, but as always a few more members would help the board to expand even more.

Even though it's new, Guru-10 is already reaching for uniquedom, with just a few neat little touches here and there. For example, there is already a Scottish SIG for fans of Auld Reekie. I imagine they'll have quite a get together on Burns night.

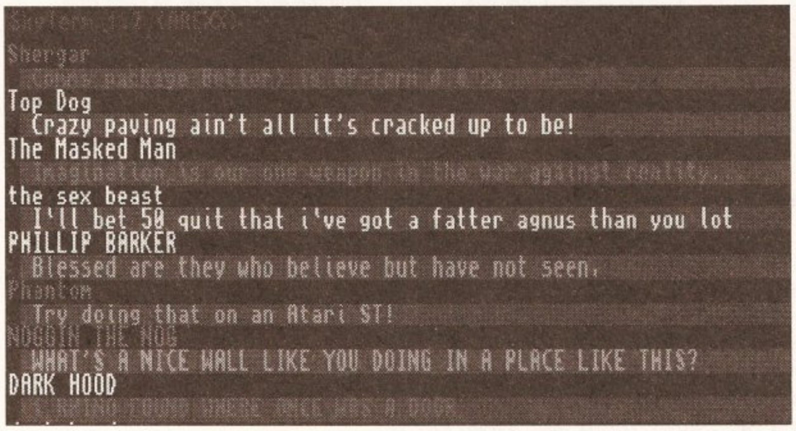
In a way, this is an ideal time to log on to this board. Although there might not be quite as much happening here as on some of the other boards, it is also in a very pliable state. You can make suggestions for new areas and maybe even help out organising a SIG for your particular interest.

Although the running of a bulletin board, the day-to-day humdrum routine, is the perogative of the sysop, the way a BBS takes shape is at least 40 per cent the effort of its users. If a whole lot of *Red Dwarf* fans were to start ringing in then before long I'm sure there would be a *Red Dwarf* SIG. If some kind person were to call up and upload loads of pictures then maybe the board would become well known for its pictureware. The possibilities are, as they say, endless.

The users of a board really do make a great difference. I really hate seeing unfair criticism of any bulletin board, because most problems generally have nothing to do with the sysop, they just have an uncaring user group. To get the most out of a board, you must think of yourself not as a user of the bulletin board, but as a contributor. AS



Above: Guru-10 is one of the UK's newest boards.



Left: A grafitti wall lets users vent frustrations – and you don't need paint solvent afterwards.

Talking to God

Very rarely, or quite frequently depending on which board you regularly access, you may be confronted by god – in other words, the sysop. There are two ways this can possibly happen:

Either you can Yell for them via a menu option on the board's main menu, or they can spot you about to do something silly/dangerous/naughty and intercede to save you embarrasment/damage/prosecution. In any case, the screen will flash, the text will disappear and you will suddenly be confronted by the sysop in chat mode.

At this point there are several things to remember. First, be polite. This is the person who has created your favourite BBS from scratch, spending a lot of time and money to make sure that everything runs smoothly and everyone is happy. Remember whose home it is. Remember how privileged you are – followers of other religions don't often get there patriarch on-line for a chat. Lastly, and most importantly, remember that sysops are nearly all quite mad.

The protocol is quite straightforward. Usually the sysop will start off with some general comment and hit [Return] twice. This is your cue. Think of something to say and off you go. Remember that the sysop can see what you are typing as you go along and may interrupt you, so if you are one of these people who have to look at the keyboard to be able to type, remember to take a quick glance at the screen every now and then to make sure you are still relevant. When you are finished, give it the old double [Return] and wait for a reply.

The double return is very important. If you don't do this the sysop doesn't know whether you have finished speaking yet or if you are merely looking for the "Z" key on your keyboard.

Laughter is something that is surprisingly easy to convey to the world of comms. It is especially effective in chat mode. Simply place one finger over the "H" key and another over the "E" key and tap away until your sides ache.



"Welcome to the AMOS column, the place where every month you can find tutorials and lots of hints and tips for use with Europress Software's AMOS Basic interpreter."

Phil South

AMOS action

This month Phil South takes a look at looping in AMOS. Plus the first review of the AMOS Compiler and a preview of AMOS 3D

Welcome back to the world of AMOS, a place where everyone has the ability to program their Amiga to do the most amazing things. In this issue I'll be looking at the AMOS Compiler, which I recently received from Europress Software, along with a demonstration version of the forthcoming *AMOS 3D*.

Yes, I know I said last month that I'd be conducting an introductory AMOS Animation Language (AMAL) tutorial this time, but the compiler came in unexpectedly at the last moment, and that's more important. So, I'll do the AMAL thing next issue, I promise. Anyway, first I'd like to spend a little time discussing control structures. (No, come on. Control structures can be fun!)

Going Loopy

AMOS has a number of looping structures which enable you to do repetitive tasks either over and over until the end of time, or over and over until certain conditions are satisfied. The looping structures I'm talking about are 'While … Wend', 'Repeat … Until', and 'Do … Loop'.

The first two are superficially similar, but there is, in fact, a difference between 'While … Wend' and 'Repeat … Until'. Let's look at the former first: this repeats a section of the code while a condition is true. For example:

```
X=0
While X<11
   Inc X
   Print X
Wend
Print "finished"
```

So, while X is less than 11, the program runs. As long as the condition of X being less than 11 is satisfied, the value of X is printed out. When the value of X reaches 11 or greater, the loop is terminated and the next line of code is run – in this case, the word 'finished' is printed to the screen.

'Repeat … Until' is the exact reverse of this: this looping construct waits until the condition is true before it stops, like so:

```
X=0
Repeat
   Inc X
   Print X
Until X>10
```

In this case, the loop keeps repeating until the value of X exceeds 10, whereupon it terminates.

Some loops are unconditional, which means they don't test any conditions in the main loop structure – they just keep going round and round until the cows come home. 'Do … Loop' is such a construct – it's similar to creating a closed loop with a Goto statement. 'Do … Loop' is used if you want a part of the program to repeat indefinitely. If you want to leave a 'Do … Loop', apart from using [Control]-C to break out of the program, you can insert an Exit command, like so:

```
X=0
Do
   Inc X
   Print X
   If Mouse Key=1 Then Exit
Loop
```

This pops out of the loop if you hold down a mouse button. Personally, I prefer the more elegant loops, as 'Do … Loop' is a bit crude, although it does have its uses.

Exit can also be made to test something itself, if you use the 'Exit If' command. You use the command like this:

```
X=0
Do
   Inc X
```

AMOS Hints and Tips

Every month I will be printing hints and tips on AMOS both from my own sources and from you readers out there. If you have any hints and tips (preferably accompanied by mini-listings) which you want to send me, whack them on paper or on to a disk and send them to: Phil South, AMOS Column, *Amiga Shopper*, 30 Monmouth Street, Bath, Avon BA1 2BW. Or you can e-mail me on Micronet (219997854), Telecom Gold (74:MIK2077) The Direct Connection (uad1135@dircon.uucp) or CIX (snouty@cix.co.uk).

• Procedures are one of the most important things to get to grips with in AMOS (besides AMAL, that is). So it's important that you use them properly. Remember to declare variables you want to share with the rest of the program, or they will be 'local'. They should be in the following form:

```
SNOUT=10 : SNOOT=15 : SNOUT$="Phil"
Procedure SNOUTY
     Shared SNOUT, SNOOT, SNOUT$
     Print SNOUT, SNOOT SNOUT$
End Proc
```

If you forget to do this, you'll get an error.

• When you develop a program, you often use a different disk from the final disk, and then have to alter the program to run from df0: or whatever. If the program can't find any of the .abk files it needs, it won't work, and sometimes all the problem lines take ages to weed out. To prevent this, always get into the habit of working from a disk with the same name as the finished program disk, and put a

```
Dir$="GameDiskName:"
```

at the start of each program. This automatically CDs to the disk in question, and means that all disk calls will go to this disk.



The front end of the Compiler.AMOS program, which interfaces you to the compiler from within AMOS itself. Just load it up and run it to compile your programs.

```
   Print X
   Exit If X>10
Loop
```

Obviously, these are very simple examples, and most of your control statements will be more complex than this, but it gives you an idea of the reasons why you would and wouldn't use a certain statement.

AMOS Compiler

One of the most exciting developments since AMOS itself is the release this month of the compiler package, enabling you to compile your AMOS programs into perfect machine code. As the program's foreunner on the Atari ST (called STOS) had an excellent compiler, the AMOS Compiler has been awaited with much impatience by the Amiga community at large. Well, it's finally here, and you'll be thrilled to know that it's brilliant.

Basically, the compiler lives in a simple CLI command called 'acmp', which you can just type at a prompt, along with some parameters. Alternatively, you can boot up an AMOS program called Compiler.AMOS, which is a graphic front end for the compiler, allowing you to compile your programs with a simple click of the mouse.

The Compiler package comes on two disks, one of which is an updater disk to convert your AMOS master disk (or at least a backup of it) to give you AMOS 1.3, as this is the only version of AMOS which is compatible with the compiler. The other disk contains the compiler, and although it runs fine on a normal Amiga, obviously the thing works better if it has more legroom in the memory department. To help users of unexpanded A500s, a number of memory saving routes have been worked out for you, so you're not penalised too much through lack of memory. Using direct mode, you can compile programs using a new command called 'compile', strangely enough. This allows you to employ memory saving features such as the ability to compile directly to disk, rather than having to load the whole program into memory before compilation can start.

There is an interesting note in the manual concerning the commercial release of compiled AMOS programs. Obviously, if you compile a program written in AMOS, it can't be distinguished from any normal machine code program without examining the machine code file produced. The manual says that if you create a program which will be released into the public domain or as shareware or licenseware, you must say that the development language used was AMOS. If you are selling the program commercially, then you must let Europress know, but the company will keep quiet about it being done in AMOS until the program comes out. The reason for this is that certain programmers are noticing a reluctance of software houses to accept programs written using "game creators". Europress will only publicise the fact that the program was AMOS-based two months after release. A neat solution to what can be a thorny problem.

Thumbs up

I like the compiler very much, as you can probably tell, and it really does make programs fly along. Although the speed difference isn't quite as marked as I was expecting, it does make a difference, especially if your creation has many tasks running at once – like animation, music and so forth. Where previously, in certain programs you will have noticed a marked slowdown in the music score when there's a lot happening on screen, you now see a definite improvement. This and the fact that you can now run your programs without the RAMOS runtime utility are the areas in which the compiler is most useful. Not only that, but compiling your program prevents people listing it and stealing your ideas. On the other hand, I would hate to see the end of RAMOS driven programs, as I think that a lot can be done with plain vanilla AMOS. The compiler has its place, sure, but it's not the answer to all your problems.

Demo corner

In the demo corner this month I have an important new utility disk called *MED Utils*. *MED*, as readers of the PD column will know, is an exciting new music creation package by Finnish programmer Teijo Kinunnen. AMOS PD Library disk 155 contains all you need to create your AMOS tunes using this great editor. The disk has a copy of version 2.13 of *MED*, plus the *MEDPlayer* program for listening to your tracks from the Workbench. But also, and more importantly, the disk contains the MEDSTCON.AMOS program, which converts the *MED* tracks to *Soundtracker* format. Then you can use the Sound_Tracker2_1.AMOS program to convert the score to the AMOS '.abk' format. Also included are a trio of ready-converted tunes for you to use, along with the docs and demos usually found with *MED*, to help you get to grips with this great program.

Oh, and by the way, I would also recommend the *Battle Pong* game on 17 Bit disk 1056, another fine AMOS production by Thorsten Hansen and Stefan Zilz. This is an AMOS game/demo which looks as though it was programmed in machine code or a compiled language like C. Fast, brilliantly done and very addictive.

Shopping List

AMOS can be obtained from your local stockist or from:

Europress Software
Europa House
Adlington Park
Macclesfield, SK10 4NP
☎ (0625) 859333

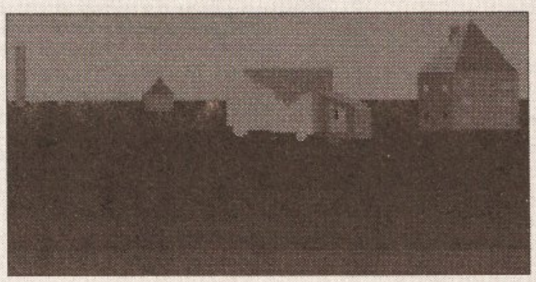
AMOS PD software can be obtained from:

AMOS PD Library
25 Park Road,
Wigan, WN6 7AA.
☎ (0942) 495261

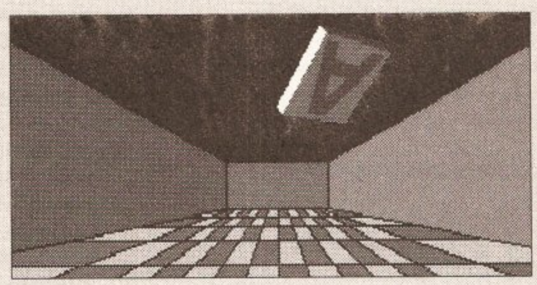
17 Bit Software
PO Box 97,
Wakefield,
WF1 1XX.
☎ (0924) 366982

Preview – AMOS 3D

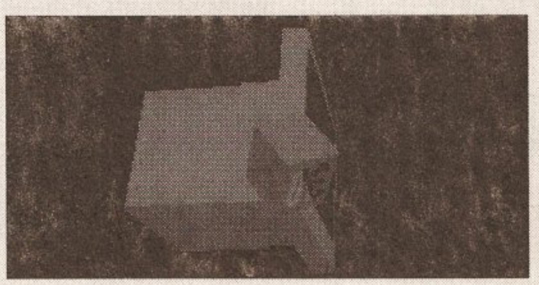
I only have a demonstration disk of the *AMOS 3D* package as yet but if the real thing is as exciting as these demos, then it will provide us with a tremendous opportunity to turn out some really great things with AMOS in the next few months. I should have more details, and perhaps even a review, next month. Cross fingers.



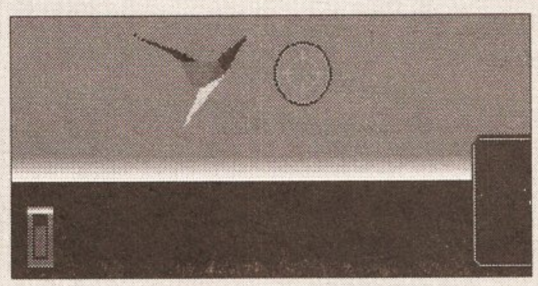
The 'truck and houses' demo allows you to rotate the truck around using the joystick, and zoom in and out of the landscape.



The 'bouncing A' demo is just that, the character 'A' tumbling around a 3D room, bouncing about off all the walls.



These 3D cube and TV objects rotate, showing off AMOS 3D's ability to create and maintain many objects at once. The letters '3D' are moving around four faces of the cube, changing colour to contrast with the colour of the face.



Dogfight is a simple game where you use the joystick to chase and shoot at a dart shaped object, an enemy ship. This shows that AMOS 3D can be used to create games as well as fabulous graphical demos.

Get your back up

> "The first time that most people think about backing up their hard disk is just after it's crashed, losing months of work. A hard disk backup utility of some kind and a set of 'disk tools' should be in everyone's software library – they could save you untold grief."
> Peter Jones

Peter Jones touches down with the* Quarterback *and* Quarterback Tools *hard disk backup and maintenance programs

Quarterback and *Quarterback Tools* are two utility programs from Central Coast Software of Golden, Colorado – although the company was recently acquired by New Horizons, of *ProWrite* fame. *Quarterback* allows the backing-up of hard disks on to floppies, while *Quarterback Tools* provides a whole range of functions to recover files on bad disks, put back deleted files, optimise disk performance and so on.

Quarterback Tools

The *Quarterback Tools* program is a combined disk performance optimiser, disk repairer and a recoverer of accidentally deleted files. Like *Quarterback* see later), it comes on one non copy-protected disk together with an A5-sized manual. Loading and clicking on the *Quarterback Tools* icon produces an initial screen display which offers a choice of any hard drives mounted. A pull-down menu option, however, allows you to show all the disk drives available, whether there are directly accessible or not. Floppy drives are displayed whether or not they have disks inserted.

Selecting a disk takes you to the main menu, where you can then: examine the volume statistics, move to the volume reorganization menu, restore deleted/lost files or drawers, go to the volume repair menu, format and unformat a volume, or change the volume to work on.

One pull-down menu lets you set how much memory the program can use: Low – the least it can get away with; Medium – around half the available memory; High – every byte going. A second menu allows you to disable AmigaDOS. This is useful if a floppy disk is so badly damaged that it crashes the machine every time it is inserted in the drive. Locking out AmigaDOS gives *Quarterback Tools* a chance to recover some of the files on the damaged disk and place them on another disk.

Optimisation and repair

The volume organisation menu allows you to look at a graphical representation of the fragmented disk; to count the number of files which are fragmented; and to reorganise the volume and defragment files, so that disk access time is minimised. This is quite a lengthy operation, and there is a stern warning that the disk should be backed up before attempting to reorganise, since a power failure or some other disaster could cause all the files on the hard disk to be irretrievably lost.

The volume repair menu is fairly self-explanatory. The find bad blocks option will check the disk and if it finds any bad blocks, ask permission to mark them as bad. This involves creating a dummy file called 'BAD.BLOCKS' in the root drawer of the volume to keep track of these blocks. The other functions of *Quarterback Tools* will look for this file and avoid these bad blocks. They will also be listed in the Volume Statistics display. The 'Find and repair bad files and drawers' option will stop at every bad file, display the name of the file, the type of error it has encountered, tell you whether it can correct the error or only delete the file, and give you the opportunity of accepting its solution or passing on to the next file.

Quarterback Tools has an ARexx interface, which means that commands can be passed from another program to *Quarterback Tools*. This means, of course, that you must have bought and installed the ARexx program, unless you are lucky enought to be running Workbench 2.0, which includes ARexx as a standard part of the system.

There are several extra programs on the disk – one of them a stand-alone program, *QBSNAP*, from Central Coast Software itself, and the others public domain utilities. *QBSNAP* will take a 'snapshot' of the file structure of a hard disk volume so

JARGON BUSTING

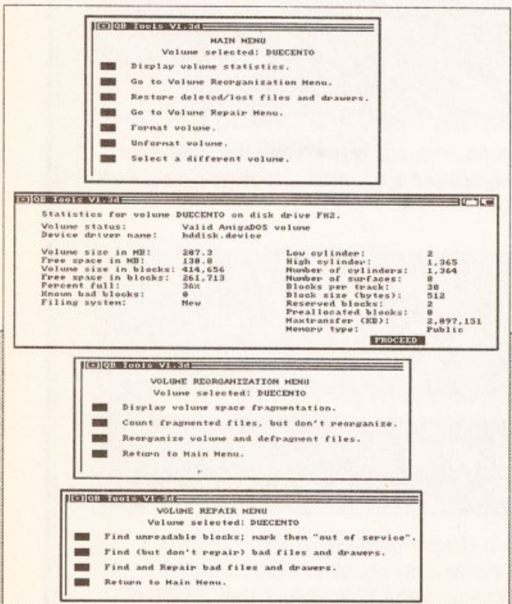
Archive bit – AmigaDOS reserves eight bits in the directory entry of each file, one of which is known as archive bits. If this bit is set, then *Quarterback* knows that it already has this file backed up and will ignore it it requested to do so the next time round. If the file is modified in the meantime, AmigaDOS will switch off the archive bit.

Bitmap – a volume file control structure containing one bit for each block on the volume, indicating whether or not the block is available (empty) or busy (contains data belonging to a particularly file).

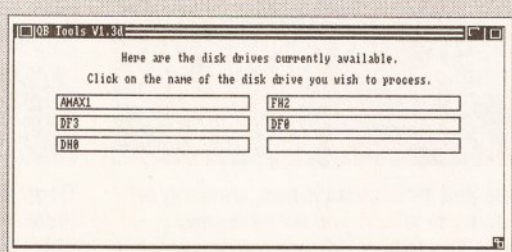
Fragmentation – as files are saved to a disk, they are stored in several pieces, one after the other. If a file is then deleted, a free space is created in between two other files. AmigaDOS will make use of this space, but if the new file is bigger, it will place the remainder of it elsewhere on the disk, adding a pointer to the end of the first part to tell the system where to find the rest. Similarly, if an existing file is modified and becomes larger than the original, the rest of it will reside in a different place on the disk. The files on the disk thus gradually become more and more fragmented. This results in a noticeable increase in disk access times, since the disk heads must move about much more to find all the parts of any particular file.

Partition – an area of a hard disk having a unique volume name and containing its own logical file structure. A hard disk can have many partitions.

Sector – a basic unit of data storage on a disk, consisting normally of a group of 512 bytes of data which are read and written together. Floppies still use the Old File System, which uses 488 bytes per sector. Sectors are also sometimes known as 'blocks'.



Quarterback Tools provides numerous utilities to optimise and repair disks.



Quarterback Tools allows you to analyse both hard and floppy disks.



This is *Quarterback*'s main menu, from which you can back up or restore files to your disk.

that it can be easily restored to its last snapshot if it gets corrupted. *QBSNAP* stores critical volume information in a file called QBT.FMT and can be run only from the CLI. I am puzzled as to why the public domain programs were included, since they largely duplicate the functions of *Quarterback Tools* itself, are not supported by Central Coast Software, and you are warned that they are potentially very dangerous, that you assume all risk of corruption or damage to the data on your disk, and that CCS cannot be responsible for any damage which may occur if you use them improperly!

Quarterback Tools is extremely easy to use, the manual explains the program well and the speed is acceptable considering the tasks being performed. Recommended.

QUARTERBACK

Once you have acquired a hard disk for your Amiga, it is essential that you back up the contents of said disk on a regular basis, unless your masochistic streak dictates otherwise! *Quarterback* is one of several programs on the market which provides such a backup facility. The package comprises one floppy disk and an A5-sized manual. The disk is not copy protected, and the program will run in 512K of RAM, using Workbench 1.2 or later. It will back up files from any valid AmigaDOS file-structured device, including hard disk drives, local area networks, RAM disks and even floppy disk drives, and is compatible with all earlier versions – in other words it will restore files from backup disks produced by earlier versions of *Quarterback*.

In use

When loaded, either by clicking on the icon or by typing a command in the CLI window, a screen appears giving the simple choice of either backing up a hard disk or restoring files to a hard disk previously backed up with the program.

A click on the 'Backup Files' button changes the screen to a display of the hard disk(s) and partition(s) which can be accessed. As you will see from the screengrab, I have two hard disks installed, a 200Mb SCSI job which is called DUECENTO ('cos I like speaking – and eating – Italian) and a 40Mb ST506 disk which has a small partition on it called, with stunning originality, BOOT – because the system boots from it. The rest of this disk is invisible to Quarterback because it is given over to the *AMAX* Macintosh emulator. As it stands, the program will back up the files it finds on fh2: (DUECENTO) to a series of floppies which will be inserted one at a time in df0:. If an alternate device had also been selected (df1: or df2:, for instance) the floppies would be placed alternately in the two drives.

A click on the 'Proceed' button and Quarterback commences to build a catalogue of all the files it finds on the designated hard disk or volume. It then displays a message that it is building a catalogue of files and to please wait. To show you that something is happening, the program increments a counter on the screen as if finds each file – although all that you actually see is a blur of figures as it zips along. The screen now changes to show the number of files, file size and number of floppy disks required to back up the data. A scrolling directory of the disk is displayed, with all directories and files selected (highlighted) for backup. Clicking once on a file name will exclude it from being backed up. Clicking on a directory will show its contents, where again files can be excluded by clicking on them before using the 'Parent' button at the top of the screen to return to the main directory. The buttons on the left of the window can be used to include/exclude files by name, by date, and on the basis of the status of the archive bit. In my case, I wanted to back up the whole disk, so I left all the files highlighted and clicked on 'Proceed'.

The screen changes again to allow various other relevant options to be selected, and finally 'Proceed' is clicked once again to begin the procedure. You are prompted to insert each disk as the program requires it. If two disk drives are being used, the program will tell you to place a disk in each and then, having completed writing to the first disk, will move on to the second and at the same time prompt you to change the first disk – which can be quite a time saver.

Restoring

Restoring files to a hard disk is just as simple, and follows a similar pattern to the back-up procedure. *Quarterback* asks you to insert the first disk of the backup set, from which it reads the catalogue file and displays it on the screen. You can then select which files you want to restore. As a safeguard, the program writes a second copy of the catalogue to the last disk of the backup set. All files and directories are restored with their original time/date stamp, file notes and protection bits set.

The manual speaks of two additional features of *Quarterback* which are worth mentioning: since the program effectively treats the backup disks as one continuous disk, spreading a file over two or more disks if necessary, it is possible to use this facility to send an extra-large file (more than 800K) to other Amiga users. Just archive it with *Quarterback*, even if it is several megabytes long, and send the disks to their destination to be restored. Also, to create space on a crowded hard disk simply archive little-used files to floppies and delete them from the hard disk.

I found *Quarterback* very easy to use. The manual is adequate and clearly written. A backup of my hard disks, some 70Mb in all, took about an hour and a half to complete, but subsequent backups would be much quicker, since only files which had been modified would need to be saved again. **AS**

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Quarterback........................ £51.03
Quarterback Tools................£71.51

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CHECKOUT
QUARTERBACK AND QUARTERBACK TOOLS

Ease of use:
Quarterback.............20/25
Quarterback Tools....19/25

Both programs presented little difficulty in use. A minor quibble with *Tools* was that when presented with the option of deleting an irrecoverable file, the 'Proceed' button did just that, while the 'Next File' button left it. I would have preferred 'Do it' and 'Forget it' respectively, or something along those lines.

Documentation:
Quarterback.............20/25
Quarterback Tools....20/25

Adequate documentation in both cases. Reasonably clearly written and unambigous.

Speed:
Quarterback.............15/25
Quarterback Tools....15/25

Acceptable, given the heavy work both programs are doing.

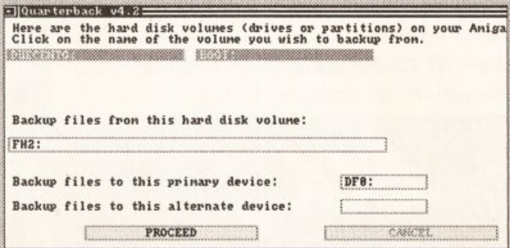
Price value:
Quarterback.............15/25
Quarterback Tools....12/25

A difficult one. In the States, the street prices are around $42 and $53 respectively, which seems like good value. However, the UK prices look very much like the old 'change the dollar sign to the pound sign and add a little more trick' – especially in the case of *Quarterback Tools*. One would do well to shop around to get the best value possible – if you're buying a hard disk, see if your vendor will throw in a copy of *Quarterback*.

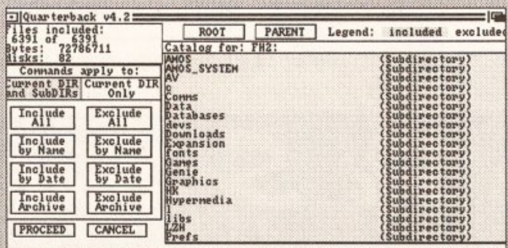
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QUARTERBACK	70/100
QUARTERBACK TOOLS	66/100

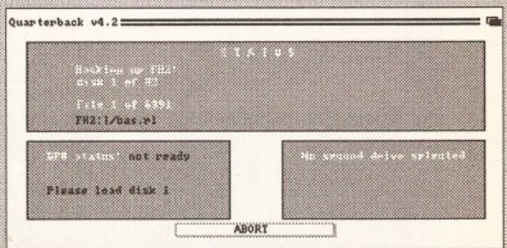
Both programs would give good service to every hard disk user, while *Quarterback Tools* is a good utility even if you just have floppies.



Quarterback **lists all the hard disk drive volumes mounted, as long as they are in standard format.**



Quarterback**'s method of deciding which files to archive is simple and intuitive to use.**



During the backup procedure, clear messages appear to prompt the user.

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In the concluding part of his review, Mark Smiddy looks at Superbase 4's forms editor and programming language

BEGINNERS START HERE

What exactly is an object oriented system?

Although the term 'object oriented' may sound new, and perhaps a little frightening, you have probably been using one every time you boot your machine! Both Workbench (the graphics interface between you and AmigaDOS) and Intuition are very simple object oriented systems. In a nutshell, if you can use Workbench you are familiar with an object oriented system.

So what are objects?

Since you are already familiar with Workbench, I'll use that as an example. When the Workbench boots up you are presented with a display containing two or more disk icons; each icon is a Workbench object with its own object parameters. By clicking an icon you make the object active, and can then perform various functions on it – format disks, open projects and so on. You can also move the objects around by dragging them, and Snapshot them into new positions relative to the windows. Similarly, the disk and drawer windows are also objects of another type and can be layered – moved in front of or behind each other so you can see what you need.

How does this affect me?

Object oriented graphics editors such as the one in *Superbase Pro 4*, although more complex than Workbench, work on much the same principles. Unlike the

continued on page 89

Just in case you missed it, the first part of this review (last month) provided an overview of the *Superbase* range and introduced some of the new facilities provided in the latest addition to that range – *Superbase Professional*. This version is a port from the PC version of the program running under Windows 3 – and has inherited many of the facilities found there. But just how good is the new version – and does it really warrant the asking price of over £400? Let's find out.

On Form

One of the major factors separating *Superbase* both from its rivals and from cheaper models in the range is its powerful forms editor. Using this you can create just about any form you desire, from simple record cards to multi-file, multi-page input forms such as the survey created for this feature (see page 90).

This version of the forms editor, ported from the Windows 3 version on the PC, has had a considerable number of enhancements and now supports Workbench 2's 'productivity' (flicker-free interlaced) mode. Although this means that the system can get the best from the powerful, high-end Amigas, it inevitably means that cheaper models (including the A1500 and A2000) are left high and dry. For instance, all the example forms have been ported from the VGA Windows version – and displayed on a flickering interlaced screen; a situation aggravated further by the high-contrast 3D bas-relief buttons.

Most users will find this unacceptable for their own forms, and will need to drop back into normal high resolution (640 x 256) in up to 16 colours. This might not seem much of a problem, but the extra effects take up more of the available screen real estate, so the already limited forms screen starts to look cramped after very few fields have been added. Moreover, cross-system developers wanting to transfer their designs between Amiga and PC will be irritated to discover that the file formats are not compatible.

Among the many welcome additions are the radio buttons and check boxes – both brought from the PC. However, a historical guideline defines that radio buttons cannot be de-selected. This means that a multiple choice form must have an extra button in every group to clear mistakes. Nevertheless, this does open the door for applications such as surveys, where the speed of processing data is paramount. Ask yourself, which is quicker: getting the input clerk to point-and-shoot a few graphics or type yes/no answers into dozens of fields?

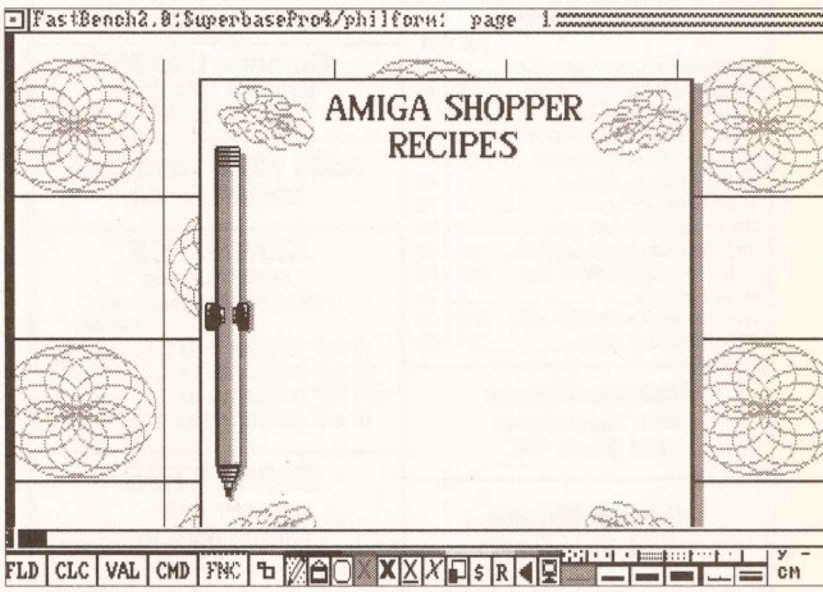
Designing forms from scratch requires opening the forms editor independently from the main program, although to get the best from the system you should have designed the database first. On systems with less than at least 3Mb, multi-tasking the forms editor along with *Superbase* is tricky, if not impossible; and even when 3Mb is available memory soon starts to get tight. This means that without a decent hard disk and a lot of memory *Superbase* is likely to be a real bind to use – a factor caused by size more than design. When enough memory is available, the forms editor can be called directly from *Superbase* by MODIFYing the current form. This

continued on page 89

BLITS

Superbase's date fields are supposed to be accurate for the next ten millenia – but who'll be around to check?

& BOBS



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continued from page 87

bitmapped graphics found in normal painting systems like *DPaint* or *DigiPaint*, once you have placed a shape it can be moved, resized, re-coloured or even deleted at a whim. You can imagine them as bits of paper lying around on a table.

The advantage of a system like this is that it's easy for almost anyone to create impressive forms without any artistic know-how. The disadvantage is that many of the special effects found in *DPaint et al* are difficult or impossible to achieve. On the plus side though, many systems have a facility to import graphics from paint packages to be used as background objects – and in this way you can have the best of both worlds.

JARGON BUSTING

ARexx: an Amiga version of the Rexx language written by William Hawes. Although Rexx is intended mainly as a complete language in its own right, the Amiga version is usually used to host inter-application control and message passing. It has also replaced AmigaBasic in Workbench 2.

Bit-Oriented (also called bit-image and bitmap-oriented): a type of drawing system where changes are fixed on to the page as they are made pixel-by-pixel and changes have to be rubbed out. See Object Oriented.

Check box: a special form button which can be selectively activated or de-activated to graphically indicate a change of state. In *Superbase*, a check box is usually only attached to a single field. Unlike radio buttons, check boxes can be cancelled. However, they cannot be attached to each other in groups without resorting to direct programming.

DML: Database Management Language. A language like Basic which is used to program the database.

Interlaced: screen resolution where the Amiga draws 25 complete frames per second rather than the normal 50. Although this means twice as many lines can be drawn vertically, the effect tends to be flickery on many monitors.

Object: an item drawn on a page in an object oriented drawing package: a line, box, circle etc. See Beginners Start Here.

Object Group: a group of similar or dissimilar objects that can be moved, sized or changed as if they were a single object.

Object Oriented: a drawing system where items drawn on the page can be moved around or changed very simply. See Beginners Start Here.

Radio button: a special object found in some WIMP systems (GEM and Windows 3, for example). Radio buttons behave so that only one button in any group can be selected (active) at any one time. They can be found in the real world on things like input selectors on hi-fis and band selectors on many portable radios – hence the term radio button. In *Superbase*, groups of radio buttons are attached to single fields.

Windows 3: Microsoft's excellent GUI for the IBM PC and compatibles.

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would be great if it worked – sadly (on my copy at least) it doesn't.

Once running, my impression of the new forms editor was less than good. Anyone spending 400 quid on a package can reasonably expect to get a system that's well designed and intuitive. At the bottom of the screen, the tools palette is a mess of different gadgets formed from unclear artwork which requires constant reference to the manual. Almost half is taken up by the colour and pattern selections – something which would be better hidden away until it was reqested.

That is not a major problem, but this is: one of the most important features of any object oriented system is its ability to move and resize objects with the minimum of fuss – and in *Superbase* these functions are unreliable and difficult to grasp. For openers, the movement and resizing tools are separate – not the combined tool more usually associated with these systems. Also, the movement tool has a nasty habit of either 'sticking on', or refusing to work at all for no apparent reason.

If that was a nuisance, the resize function is a joke. In every other similar system I have used,eight 'handlebars' appear at the periphery of a frame arranged like compass points when an object is selected. By selecting any handlebar, it is possible to size the frame in any of the eight directions. With *Superbase*, however, objects can only be sized in one direction – diagonally from the top-left to bottom-right.

Furthermore, although there is an (unreliable) option to select multiple objects, there is no facility to create object groups or align objects with each other. For example, you might want to create three boxes (three objects) and have them behave like a single object whenever they are selected. As it stands, this is only possible by selecting the appropriate objects separately every time you need to work on them. As far as object alignment goes, *Superbase* has a grid lock facility which locks objects to a user-definable grid. This is messy: I would like to have the facility to select a group of objects and align them to each others' tops or sides.

An extra feature bolted on to the side of the forms editor is the report editor. This is an unusual addition because although reports are constructed rather like forms, they are actually just DML (Database Management Language) programs. Non-programmers will have to learn at least a little of how DML works to get the best from it – but DML programmers will have a field day! The reports generator works rather like the existing QUERY system, but there is more room for adding things like headings, footings and extra details.

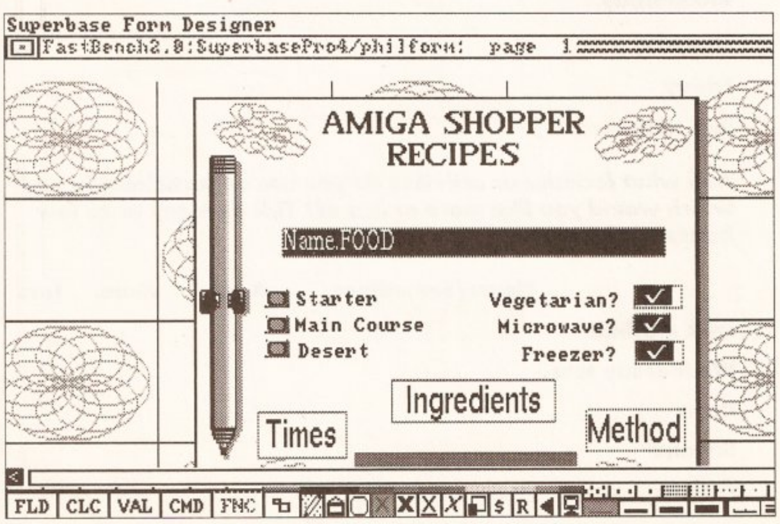
Worst of all, the current forms editor is badly bugged. I could pass over the odd glitch here and there – but some are so severe that the machine hangs completely or just Gurus. Worse still, some bugs often proved difficult to replicate – so they could not be easily avoided. The recipe example form shown here is incomplete because the resize function constantly attempted to scale the background graphic and crashed the machine. And the reports generator consistently refused to test reports on screen.

Other features – such as marking and handling objects – often prove dodgy if not totally unreliable. All this, added to the clumsy object highlighting making them difficult to see even on a 1084S, makes the forms designer a real devil to work

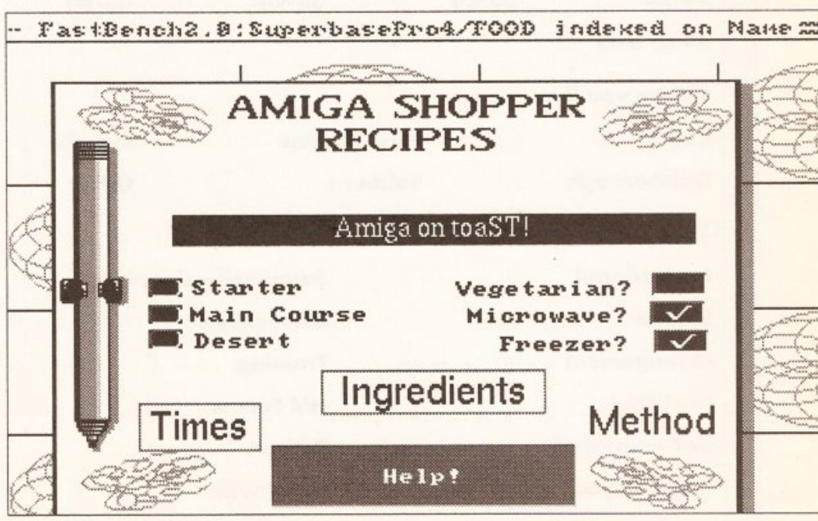
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BLITS & BOBS

Superbase is capable of storing up to 1,000 million records in one file – that's enough to keep records on every living person in the UK 18 times over! Of course, you'll need a rather large hard disk to do it…



Form creation is fairly easy, with a range of tools displayed at the bottom of the screen. Unfortunately, some of these are less than robust in use.



Once a form has been created, check boxes and radio buttons can help to speed up data input radically.

Mark Smiddy's Patent Beer Test

Since *Amiga Shopper*'s first issue, I have gained a reputation for devising strict (bordering on the violent, some would say) tests of hardware and software. At the end of the day, testing a package with data supplied by the producer is fine – but hardly a fair test.

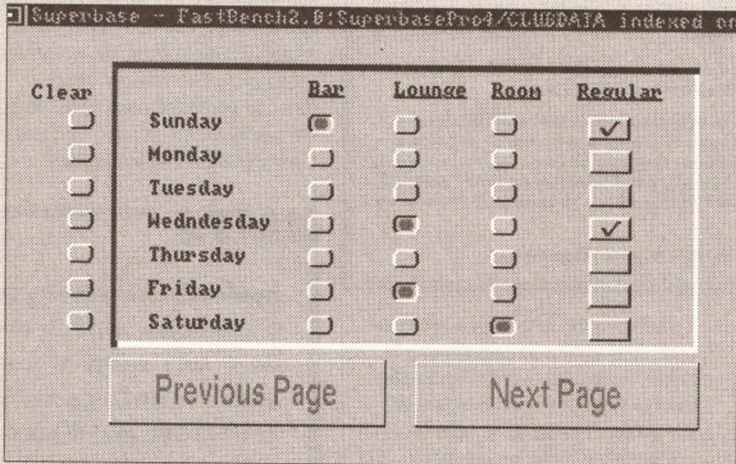
With this in mind, I devised 'The Beer Test', and it has nothing to do with spilling anything over anyone. Unlike the floppy drive test, which involved subjecting the units to a wide variety of caustic solutions, the best test of a database is real-world data. This involves everything from collecting the data, through forms design, input analysis and the production of reports from that data.

The Beer Test is a complete case study based on a survey of almost 500 members of a real Members Only club (we'll call it the Redcar Sports Club) from conception to completion. *Superbase* was used to process and analyse the results from completed forms and Gold Disk's *Advantage* spreadsheet used to generate the presentation graphics. I'll be giving a complete case-study breakdown as part of next month's business column; at this stage though, let's find out how *Superbase* coped.

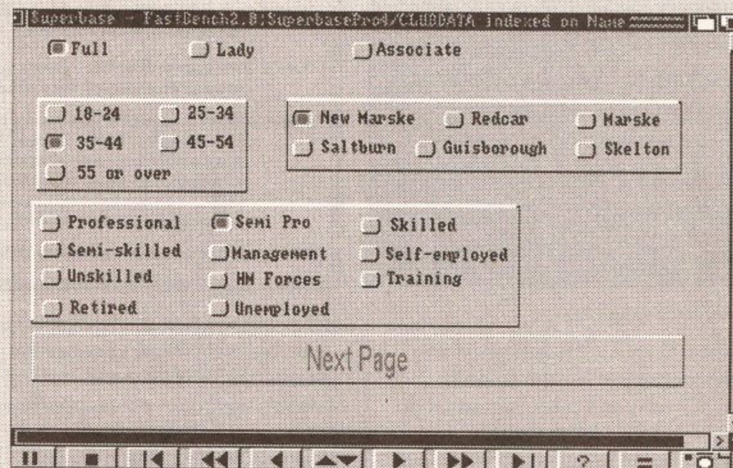
The 'paper form' shown below is part of one which the membership was asked to complete. A quick glance at this will tell you that this is typical of the sort of 'multiple guess' surveys we all come across from time to time. With many surveys and questionnaires, data is read directly by a card reading computer – but this had to be entered manually by two data clerks assisted by yours truly! This, then, is the Mark Smiddy Patent Beer Test.

A form such as the one below consists mainly of multiple choice answers – and lots of them. With a conventional system – and you can include the older version of *Superbase Pro* in that – this is a nightmare. The simplest system is to assign a value to each box but that means typing, and typing leaves vast chasms for operator error. Even with point-and-click entry on a form, there is still the hassle of ensuring that only one result is entered into each field.

Superbase Pro 4 overcomes this unusual problem with the radio



Using checkboxes and radio buttons, data entry of complex forms becomes far easier and less prone to operator error.



The video recorder-style buttons help the user to navigate through the database with the minimum of effort.

Redcar Sports Club Survey

Completing this questionnaire will help the Committee give you a better service and make the best use of the resources available.

Name: ____________________ ***Membership No. (if known):*** _______

Age

18-24 ☐ **25-34** ☐ **35-44** ☐ **45-54** ☐

55 or over ☐

Where you live

Redcar ☐ **New Markse** ☐ **Marske** ☐

Guisborough ☐ **Saltburn** ☐ **Other** ☐

Your job

Professional ☐ **Semi-professional** ☐

Skilled ☐ **Semi-skilled** ☐

Management ☐ **Training** ☐

Unskilled ☐ **HM Forces** ☐

Self-employed ☐ **Retired** ☐

Unemployed ☐ **Housewife** ☐

Which days do you attend? If you move between rooms, please state the one you use the most. If you attend on any day more than twice a month, enter a tick in the regular box.

	Bar	Lounge	Tap Room	(Regularly)
Sunday	☐	☐	☐	☐
Monday	☐	☐	☐	☐
Tuesday	☐	☐	☐	☐
Wednesday	☐	☐	☐	☐
Thursday	☐	☐	☐	☐
Friday	☐	☐	☐	☐
Saturday	☐	☐	☐	☐

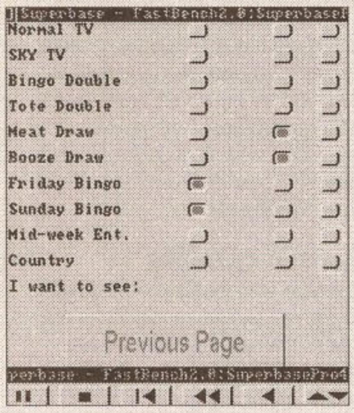
And what facilities or activities do you use or participate in and which would you like more or less of? Tick as many or as few boxes apply to you.

	Never/Sometimes	A Lot	More	Less
Fruit machine	☐	☐	☐	☐
Wednesday tote	☐	☐	☐	☐
Darts	☐	☐	☐	☐
Snooker	☐	☐	☐	☐
Pool	☐	☐	☐	☐

buttons and the check boxes. Consider the part of the form where the management committe want to know which days people attend, whereabouts they go and how often. This is divided into 28 separate cells; 21 for the three rooms on each day of the week, plus seven extra (optional) boxes to be ticked for weekdays the member considers themself a regular – attending more than twice a month.

Therefore, for each weekday there can be several entries: not in at all, in occasionally, or in regularly on a particular night. For the weekday setting a radio button was used. These work in such a way that for any group of buttons (a group is any number of buttons attached to a field) only one button can be selected at any time. Therefore, the entry is automatically constrained to, in this case, one of three choices.

Similarly, the check box can be selected in addition to indicate the rooms a member uses regularly. When designing the form, *Superbase* asks for a value to assign for each button or check box – so data entry is literally just 'point and click'. By carefully designing the



Data entry in *Superbase* is exceptionally easy.

input form to match the survey form, clerks can check the results quickly and easily.

Once the forms have been entered, results can be analysed and reports prepared. In *Superbase Professional 4*, the forms designer is used to automatically design a DML program by designing a report form. All you have to do is decide the fields, groupings, headings, footings and so on – *Superbase* does all the rest of the work.

Details of how *Superbase* coped with the Beer Test will be part of a special feature on business reporting and presentation starting next month.

continued from page 89

with. It may have been fine on a PC, but the Amiga version needs a lot more work before I could give it top marks.

About DML

My first impression of *Superbase 4*'s programming language is that it's almost like a hybrid of *dBase IV* and Basic. Anyone who is used to *dBase* will probably find this confusing. However, since *dBase* it is only available for the PC, most users will be starting from scratch with perhaps some experience of Basic – so that's no bad thing. It should also be said that DML is a generally a lot more logical than *dBase* because forms are more easily integrated; and that means faster program development.

As far as the language goes, it is difficult to judge since programming is very much a personal thing and benchtests seem to be a bit pointless. As a matter of interest, I did a couple of very simple tests that hardly warrant as benchmarks. For those interested, an empty FOR...NEXT loop completes 10,000 loops in 10 seconds, increasing to 34 seconds when a simple cumulative addition is inserted. Put another way, DML is neither fast nor slow. But execution speed is hardly important here since most DML programs will rarely execute more than a few steps before pausing for user input or performing database file functions.

Apart from simple looping and conditional constructs such as

BLITS & BOBS

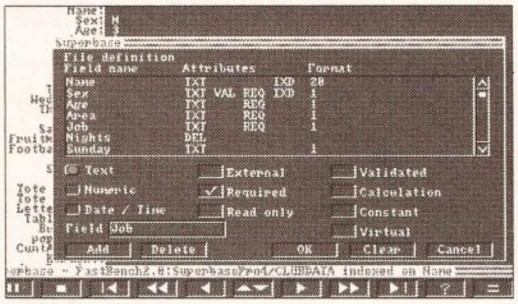
Superbase includes a complete communications package so you can (theoretically) control the system remotely from home – just don't tell the boss...

FOR...STEP...NEXT, WHILE...END, REPEAT...UNTIL and IF...THEN...ENDIF, the vast majority of the language concerns itself with controlling all the functions normally accessed through the menus. By careful programming, it is quite possible to create an application where novice users are guided through every function without ever knowing what's going on under the surface. As an extension to this, it should be possible to interface to other programs through the fully programmable ARexx interface.

Therefore, data could be collected by *Superbase*, graphed by (say) *Advantage*, and the results displayed in *Superbase* as external files.

Conclusion

It would be easy for me to rave over *Superbase*, especially as an admirer of a system I have used for years with a great deal of success. This new version has seen improvements in some key areas such as the file requester. Indeed, the whole interface has been improved considerably. However, although *Superbase Professional 4* is a great deal better than the competition – and far better than its previous version – it has lost much of the impetus that catapulted it ahead of many PC systems.



Despite some faults, *Superbase* is "still by far the best on the Amiga."

The primary advantage of *Superbase* over other comparable systems, the forms editor, is also the weakest link in the chain. It is the first object oriented designer I have come across that does not fully support object groups and its interface is tricky to the point of being irritating. Also, remember that those nice colour forms shown on the advert and packaging are from a SuperVGA PC. The Amiga version can not display them – 16 colours is the maximum.

In fact, a cheaper option would be a KCS Power PC board (see *Amiga Shopper* issue 2) and the shareware database *Zephyr*. Although the *FoxPro*-based system cannot support features only found in a real GUI, the reports designer is far simpler to use. The total system price comes in at under £300 including VAT – and you even get a free PC!

That said, with some of the more irritating bugs fixed (such as a confirmed Quit) and the forms designer enhanced in some key areas, *Superbase* would once again be the force to be reckoned with. If you are prepared to learn to program under DML, then the database world could be your edible marine bivalve of the genus *Ostrea*; that's oyster to non-programmers. As it stands, *Superbase Professional 4* is an excellent system – still by far the best on the Amiga – but probably too expensive to justify purchase. Unless you have an A3000, of course... AS

Thank you, Luvvies, Thank You

For this part of the review, thanks to Graeme and Gareth for being such amazingly good sports, finding the numerous bugs in my forms and entering a truly huge pile of data.

Shopping List

Superbase Professional......£411.20

Supplied by Precision Software
6 Park Terrace, Worcester Park
Surrey KT4 7JZ.
☎ 081-330 7166

Also available:

Superbase Personal............ £40.82
(basic but very good)

Superbase Personal 2........£102.11
(similar to Pro, but lacks form designer and DML)

(Prices quoted are inclusive of VAT @ 17.5%)

Checkout

Superbase Professional 4

Documentation.........7/10
Heavy – more could (and should) be done to guide new users. On-line help would be very useful.

Features...................6/10
Superb overall, but lacking in a few areas usually found on software of this price and calibre.

Programmability......8/10
Easy access to all functions but the editor is a little clumsy.

Relationality............6/10
Should be easier to use. It lacks many-to-one and many-to-many relations and one-to-many support is messy in the forms editor.

Forms editor...........11/20
Powerful, if a little shaky and still just 16 colours maximum. Better version expected soon.

Interface 18/20
Still the best around.

Price 12/20
On the expensive side for an Amiga product.

AMIGA SHOPPER 68/100

Far and away the best Amiga database ever, but still behind some systems on other micros.

Bubbling



Jeff Walker takes a look at a bubblejet printer from Canon which produces near-laser quality for rather less money than you might expect

History has recorded that Canon's bubblejet technology was invented by fluke. Back in the Seventies a clumsy researcher accidentally brought a soldering iron into contact with an ink-filled syringe, a bubble formed in the liquid and then, whoops, out spurted some ink. Like any conscientious worker, he reported the accident to his boss.

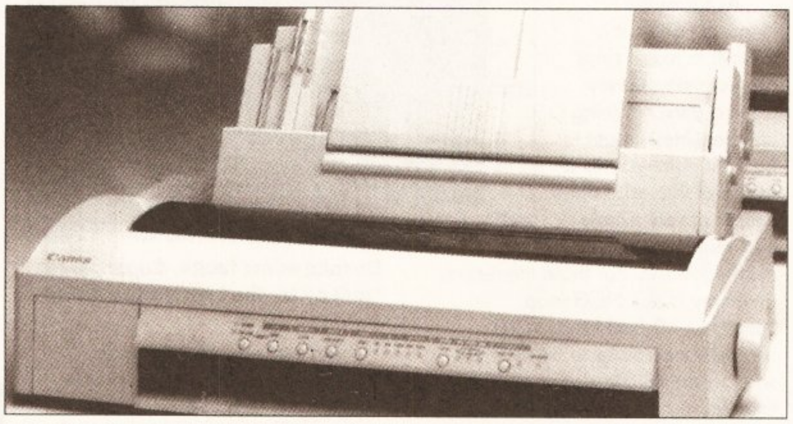
History has not recorded whether the clumsy (and unnamed) researcher made any capital from his discovery – I rather suspect that he didn't. I can see him now, dishevelled hair, one collar sticking up, wonky spectacles, sitting in a corner of a pub telling any non-local who comes near him: "I invented the bubblejet printer, you know. Buy me a pint and I'll tell you all about it."

And that's as far as he gets. Silence descends once more. Which is a fitting epitaph to him because silence, or something very close to it, is what bubblejet printers are best at.

Size and stuff

This is a review of Canon's top-of-the-range bubblejet, the BJ-330, but to all intents and purposes it is a review of the smaller BJ-300 as well, since the only real difference between the two is the carriage width. The maximum width of paper the BJ-300 can take is 297mm – that's A3, or sideways A4 if you like – whereas the BJ-330 can take paper up to 431mm wide, which is A2 or sideways A3. Other than that, both printers are exactly the same.

The BJ-330 is not a small printer. At 592mm wide x 333mm deep x 137mm high (about 2ft x 1ft x 6in), it will take up half a normal-sized office desk, especially since cut sheet paper is loaded manually one sheet at a time into a opening at the front. (A tractor mechanism is built in as standard; fanfold paper feeds in from the back.) Two automatic cut sheet feeders are available as optional extras; they add about a foot to the overall height and reduce the maximum size of the paper that can be used down to 364mm x 364mm (just over 14inches). So although the cut sheet feeders will handle A3 width, they fall short of full A3 length by some 56mm (just over 2 inches).



The BJ-330: "Stunning black and white or greyscale graphics output."

In practical terms, this means that all documents printed on A3 paper using the cut sheet feeders must have a one-inch margin top and bottom.

Feeding single sheets into the hole at the front is quick and easy. You slide the paper in until it hits resistance, press the on-line key, and in it goes. There is a slider guide on the left of the running board which is marked for A3, B4, US Letter, US Legal, B5 and A4, so getting the left margin position right is not a case of trial and error – as is the case with a lot of dot-matrix printers.

The print head is now aligned with the exact top of the paper. Canon recommends that you set a minimum half-inch top margin for best quality results, but the printer doesn't force this upon you.

Driving you mad

Now we come on to printing itself, and that scourge of the Amiga owner, the dreaded printer driver. The question you all want answered is: is there a Preferences printer driver for the Canon BJ-330? Well, sit down and remain calm. The answer is yes…

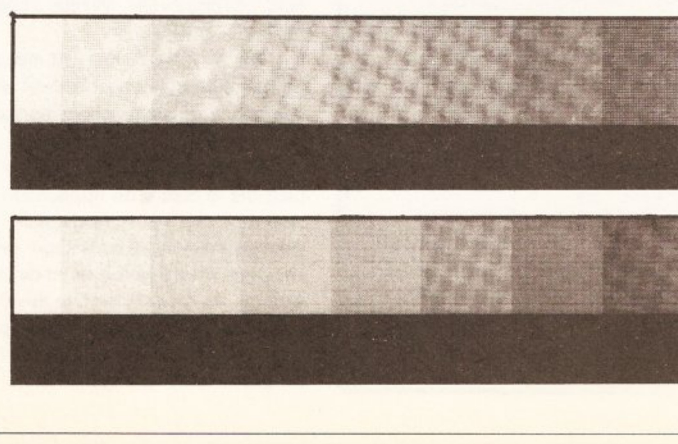
…And no. You see, the BJ-330 has two emulations: IBM Proprinter XL24e and Epson LQ-1050 (XL24 and LQ-850 for the BJ-300). The Epson emulation means that the standard EpsonQ driver will work fine for text, but because of the restrictions within that printer driver you won't be able to print 360x360dpi graphics, only 360x180. On top of this, the EpsonQ driver takes two passes for 360x180dpi graphics, spurting far too much ink on to the page.

Unlike some other printer manufacturers, though, Canon isn't blind to this Amiga-specific problem and has actually done something about it. Canon Central Support actively tracked down one of the two people in the world who had a proper bubblejet driver – ach, why be modest, it was me – and asked the author of the driver (Wolf Faust, who lives in Germany) to write one for the new models. In the meantime, the original bubble jet driver – which is called Canon48 and was written for the BJ-130 but works fine with the BJ-330 in IBM Proprinter mode – went on to a Fish Disk and a Jamdisk and has spread itself around bulletin boards worldwide.

Output quality

So, armed with the Canon48 driver you can get some stunning black and white or greyscale graphics output from the BJ-330. However, because paper is either friction- or tractor-fed, and even though the printer's resolution is higher, the quality is not quite as good as that produced by a laser printer, thanks to the inaccuracies of the feed mechanisms. There is a slight amount of banding visible, and occasionally the paper is fed a fraction too far, causing the

Despite the BJ-330's high resolution, only about eight or nine grey levels are discernible in these charts showing the patterns produced by the Amiga colours 000 (black) through 111, 222 and so on, up to FFF (white). Everything from 555 to 111 is indistinguishable from black. The upper chart is at 360dpi – in the lower chart, output at 180dpi, another couple of grey levels (555 and 444) can be seen. (Remember to take into account the fact that this is not direct output from the printer, but rather output which has then been printed on a web offset press.)



under

odd horizontal white line to mar an almost perfect graphics dump.

The paper itself is the biggest problem. Although the manual recommends standard bond (photocopier) paper, the special kind of ink used, which is very thin, tends to soak into the paper, causing short, thin spidery lines to spread out from areas of black.

When printing only text using the BJ-330's built-in fonts, the ink-spread isn't so apparent and is not much of a problem, but with graphics output, from a paint or desktop publishing package for example, the little spidery lines are annoying and spoil the effect. For letter-writing and general use this is nit-picking, because no-one is going to be looking that closely at what's on the paper, but if your output is intended as camera-ready artwork then you'll need to get hold of better quality stuff that causes the ink to dry immediately it hits the surface of the paper.

I've tested many types of paper in Canon's bubblejets and emerged with only one that is completely acceptable to me. It's a chalk-coated paper manufactured in Japan by Genuine Diablo Printer Supplies. It comes as cut sheet or fanfold, and is not cheap – single sheet A4 costs about £25 per 500, fanfold is more than double that.

Of fonts and fings

You don't need a desktop publishing package to get good-looking type from the BJ-330: it has three built-in fonts – Courier, Prestige and Gothic. Courier is the standard one most dot-matrix printers use, Prestige is similar to Courier but thinner, and Gothic is not a fancy old-fashioned looking font, but a sans serif font which is very similar to Helvetica.

All three fonts can be output at 10, 12, 15, 17 and 20 characters per inch (cpi, also known as pitch), and there is a proportional version of each. Two output qualities are available – High Speed (HS), which works at 300 characters per second (cps) at 10 characters per inch, and High Quality (HQ), which slows things down to 150cps because it uses twice as many dots to form each character on the page.

If the built-in fonts aren't enough for you, there are font cards available which slot into two holes in the top of the printer, or you can download fonts into a 128K RAM card – all of which cost extra, of course. And I should say that even after an extensive search I couldn't find any dealers who stocked either the RAM card or any font cards, for some inexplicable reason.

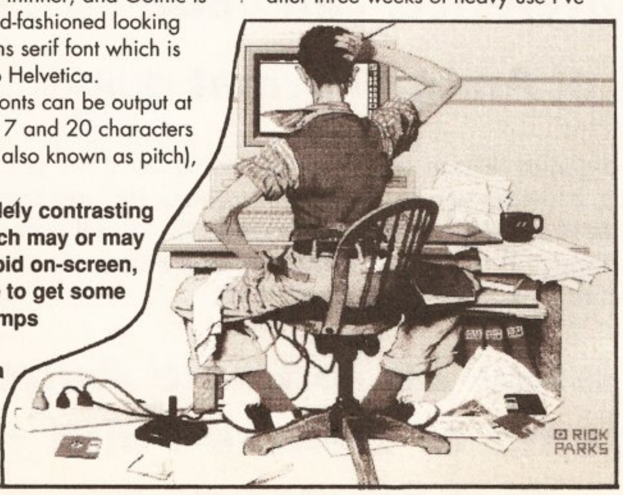
Font and pitch are selectable by software control codes, detailed in the programmers' manual, or by pressing buttons on the printer's uncomplicated control panel, the operation of which is detailed in the users' manual.

The ink cartridges are easy to fit, slipping into a covered slot in the front of the printer. They hold quite a lot of ink – enough for one million characters in HQ mode (at least, that's what it says in the manual, and after three weeks of heavy use I've still not emptied my first cartridge), and they are comparatively inexpensive at only £13 each.

The print head has a life expectancy of 100 million HQ characters. This is a long time. If you printed 10,000 characters each and every day (about 2,000 words) starting from 1 August 1991, you'd reach 100 million characters sometime around Christmas 2018 – 27 years later. Of course, Canon doesn't guarantee the BJ-330 for 27 years, only for 12 months, so these figures have to be taken with a pinch of salt. If the worst happens, you can expect to pay about £250-£300 to have a new head supplied and fitted outside the warranty period (the head itself costs about £115 at the time of writing), so it's worth paying for the extended warranty option. AS

This sample was output to the BJ-330 by *PPage* at 360dpi on to chalk-coated paper. Under a magnifying glass the lines aren't as sharp as those produced by a 300dpi laser printer – but then, laser printers cost twice as much, use lots of expensive toner, have noisy fans and fill the room/office with the horrid smell of ozone.





By using widely contrasting colours, which may or may not look stupid on-screen, it is possible to get some excellent dumps from the BJ-330. This is a dump of a 16-colour high-res picture.

Shopping List

Canon BJ-330	£420 + VAT
Cut Sheet Feeder	£120 + VAT
Font Cards	£95 + VAT
RAM Card	£170 + VAT
BJI-642 Ink Cartridges	£13 + VAT

The printer and sheet feeder prices were averaged after phoning a dozen retailers around the country (the actual rrp for the printer is £695 + VAT). Some charge extra for delivery, some deliver free within a certain distance.

Canon48 Printer Driver

EpsonQPlus Printer Driver

Available on Jamdisk #2 ....£2
from JAM
75 Greatfields Drive
Uxbridge UB8 3QN
☎ 0895 274449

Checkout Canon BJ-330

Speed 13/15
No slouch at 150cps in high quality mode, the BJ-330 zips along at 300cps in draft mode. A typical A4 page of text takes 15 seconds to print in draft 10cpi and 30 seconds in high quality proportional. Using the Canon48 driver mentioned in the article, a typical 32-colour low-res screen takes about 80 seconds to dump at 180dpi, while an A4 *PPage* document takesabout 20-30 minutes at 360dpi.

Noise level 9/10
Incredibly quiet. More than one dot-matrix printer-owning friend has gone away from my house pledging to save up for a Canon BubbleJet purely for the (literal) peace of mind. If it wasn't for the cluck of the feed mechanism, the BJ-330 would be almost totally silent.

Text output 16/20
Three fonts available from the control panel in two qualities at five pitches, plus proportional. Via control codes there is access to double height, double width, subscript, superscript, bold, italic, underscore, overscore, outline, shadow, outlined shadow and reverse styles, plus backround shading. An understanding of how printer control codes work, and how your word processor sends them, will be needed to access all the styles exept subscript, superscript, bold, italic and underline, which are standard styles suported by most word processors.

Graphics output 14/20
For top quality results, expensive chalk-coated paper needs to be used (see the main article), although most users will find standard photocopier paper good enough. The 64 minute nozzles in the print head produce a high quality 360dpi, great for Compugraphic or *PageStream* fonts, but only about eight or nine different grey levels are discernible in a screen dump of a coloured graphic.

Documentation.........5/10
The manuals are the usual mixture of one for the non-technically minded (the user) and one for the person who like to get his hands dirty (the programmer). The average user may find the programmers' manual hard going.

Price value 20/25
The two printers which the BJ-330 emulates, the IBM Proprinter XL24e and the Epson LQ-1050, cost about £490 and £520 respectively, which makes the BJ-330 excellent value at £420, especially considering the cheap price and long life of the ink cartridges.

AMIGA SHOPPER 77/100

A good printer, spoilt slightly by the sometimes erratic line feed in graphics mode, plus the need for expensive paper to get high quality results. The Hewlett-Packard DeskJet 500, which has to be the BJ-330's main competitor despite a lower resolution (300dpi) and being only narrow carriage, gives the same quality output on photocopier paper as the BJ-330 gives on chalk-coated paper.

Cracking The Shell

BEGINNERS START HERE

What is 'resident'?

The 'resident' command was introduced with Workbench 1.3. The idea is that if a command can be pre-loaded into RAM it can be executed faster. This is far more convenient and much faster than all the seemingly endless disk swapping, but it does eat valuable RAM on the smaller machines.

So what is the point of resident when commands can be loaded into the RAM disk?

The RAM disk behaves rather like a very fast disk drive but like all disk drives it suffers from two problems. First, the filing system has to locate the required file – a command, in this case; next it has to be loaded into RAM. This is the nub of the problem, because that means two copies of any command will be residing in RAM at the same time: one on the RAM disk and another somewhere else actually being executed. If a second copy of the command is required by another Shell process, then three copies of the command will be present – and so on. When the commands terminate, any RAM they occupied is reclaimed by the system: this is what is meant by transient commands.

And how does that affect me?

When a command is made resident, several Shells can execute the same copy of the command at once. Therefore only one copy needs to be stored in RAM at once – no matter how many processes are sharing it. This requires some very strict programming, which means that almost all commands have to be at least partially re-coded and is probably one of the reasons why version 1.3 of Workbench took so long to appear.

Understanding the startup script is the first step on the way to customising your own disks, as Mark Smiddy explains...

In this episode of the AmigaDOS column, I want to make another diversion from examining each AmigaDOS command in detail, and look instead at that mysterious object, the startup-sequence. The startup-sequence is a script file that gets executed (run) every time you boot a Workbench disk. It holds the key to customising Workbench for your machine – even to the point where you can have different Workbench disks for different applications. For example, you might have a Workbench disk set up for word processing, another for AmigaDOS, another for programming and so on.

The startup-sequence is a script just like any other. When you switch on, AmigaDOS looks for it by name in the s: directory of the boot disk; the one in df0: for most machines. (AmigaDOS 2 can boot from any drive but df0: is searched first.) If the file is found, it is loaded and processed just like any other script. Two things are important to note here: the startup script must be in the s directory, and it must be called "Startup-sequence". Whether the filename is in upper or lower case is not important, but the hyphen (-) punctuation is.

Bum(p) start

Before attempting to customise your own startup-sequence, it is worth investigating the one supplied by Commodore. In this article, I will only look at Workbench 1.3's startup-sequence because it is by far the most complex currently in use – and that includes the one supplied with Workbench 2. (The situation is exacerbated because Commodore chose to divide the script into two parts. The reason for this has never been made entirely clear – but there you are.) Therefore, if you can appreciate the general way that the 1.3 startup works – it isn't necessary to understand it completely – you will be able to get a better idea of how the whole thing hangs together.

If you are still new to AmigaDOS, a complete reference to all commands will prove very useful because there is insufficient space to explain them in any depth here. The most complete is, of course, *Mastering AmigaDOS 2, Volume 2.* (OK, that's a shameless plug for my book, but hey, we've all got to eat!)

Take a look at Listing 1 on the next page, which is the complete startup-sequence as it appears on UK machines, although with the comments removed to save space – comments are separated from commands by a semi-colon. There will be a few minor differences in other countries, but the important bits remain the same. If you prefer, you can examine your own startup-sequence by issuing the following command from the Shell:

```
ED S:Startup-sequence
```

The listing breaks down as follows:

1: The 'Addbuffers' command adds a software-based memory cache to the disk drives. Used in this way, 5,120 (512x10) bytes of buffer RAM are attached to the internal drive. Cache buffers are used to temporarily store disk blocks in RAM, where they can be retrieved faster. Unfortunately, the Amiga's caching system is not exactly the most intelligent around (FACCII is much better) and the best results are obtained with values from 10 to 25 blocks.

2: 'SetPatch' patches the system functions – or, put another way, it fixes some of the bugs in the 1.2 and 1.3 ROMs. In particular, the recoverable alert (the green guru) is made recoverable and the RAD: (reset-safe RAM disk) device is fixed to work with 1Mb Chip RAM machines – see later. The extra bit, '>NIL:', is called "redirection to NIL" and prevents the command printing any messages such as "Exec alert patched". The 'C:' ensures that the command is loaded from the correct directory. (Actually it's a bug, as you'll see later.)

3: This makes the current directory C:, the AmigaDOS command directory. C: is assigned automatically to SYS:C (the C directory of the boot disk) before the AmigaDOS window appears after resetting the machine. Don't panic if that seems a little odd right now, I'll be covering such heady subjects later in the series.



"Startup scripts are as old as disk operating systems – but the Amiga's are some of the most complex around. Read on..."
Mark Smiddy

4: At this point, the Workbench finally gets round to announcing itself. The 'echo' command, like PRINT in Basic, displays the text enclosed in quotes.

5: The command FastMemFirst is another patch to make the most of expansion (Fast) memory on machines which have it installed. In essence it patches the memory allocation routines so that programs requesting any type of memory from the free pool are always given Fast memory if enough is available. If this command was not used, the more precious Chip memory would get used first. You should notice the 'SYS:System/" path prefixed to the command. FastMemFirst is a System command which, strictly speaking, does not belong to AmigaDOS. Therefore, it is placed in the System directory and SYS:System tells AmigaDOS where to find it.

6: This command is used to *bind* (attach) software drivers for extra hardware to the system – hence the name. This will apply to many early hard disks and some RAM expansions. Hardware requiring BindDrivers will always have a file in the Expansion drawer of the boot disk.

7: Setclock is used in this way to retrieve the current time and date from the battery backed-up clock on the A501 and similar expansions and use it to set the internal (system)

continued on page 96

continued from page 95

clock. This command also requires the DATE command to work. Some RAM expansions and other trapdoor hardware, such as the KCS Powerboard, come with non-standard clocks which require use of proprietary software.

8: This is Charlie Heath's famous FastFonts program. It's another patch which improves the way the Amiga renders text in Intuition windows. Put another way, it speeds up just about anything which uses text – simple word and text processors, AmigaDOS and so on. Redirection to NIL: (>NIL:) is used to stop the command printing its copyright message. The switch '-0' tells FastFonts to install itself.

Listing 1 • Listing 1 • Listing 1 • Listing 1 • Listing 1 • Listing 1

```
1.    Addbuffers df0: 10
2.    c:SetPatch >NIL:
3.    cd c:
4.    echo "A500/A2000 Workbench disk. Release 1.3 version 34.20*N"
5.    Sys:System/FastMemFirst
6.    BindDrivers
7.    Setclock Load
8.    FF >NIL: -0
9.    resident CLI L:Shell-Seg SYSTEM pure add
10.   resident c:Execute pure
11.   mount newcon:
12.   failat 11
13.   run execute s:StartupII
14.   wait >NIL: 5 mins
15.   SYS:System/SetMap gb
16.   path ram: c: sys:utilities sys:system s: sys:prefs add
17.   LoadWB delay
18.   endcli >NIL:
```

9: This line is the most complex one of the 1.3 startup, because not only does it have the most arguments, but it also introduces 'resident'. I'll look at this command in more detail later in the series, but a quick explanation can be found in the beginners section. The actual command line is used to activate the Shell program – that's all you need to know. For the curious, here it is broken down into its component parts:

resident: The command itself.

CLI: The name of the command as it will appear in the resident list. CLI is used because the program made resident here will effectively replace the CLI and provide features like 'alias'.

L:Shell-Seg: This is the actual Shell program. Shell-Seg lives in the L: assignment, so that name is added to the path to allow resident to find and load it.

SYSTEM: This switch forces resident to load Shell-Seg into the private system list. Executable code loaded in here can only be accessed by the system and not executed directly – that is, it can't be executed by you.

pure: This switch tells resident to force-load the Shell-Seg even if the pure (P) flag has been reset. It is used as a matter of safety, rather than necessity.

add: This switch makes resident add the Shell-Seg to the current system list. Adding the code in this way prevents the command from crashing, because it is added to the list and does not replace any code already installed with the same name.

Listing 2 • Listing 2 • Listing 2 • Listing 2

```
resident c:Resident pure
resident c:List pure
resident c:CD pure
resident c:Mount pure
resident c:Assign pure
resident c:Makedir pure
makedir ram:t
assign T: ram:t
makedir ram:env
assign ENV: ram:env
makedir ram:clipboards
assign CLIPS: ram:clipboards
mount speak:
mount aux:
mount pipe:
resident Mount remove
resident Assign remove
resident Makedir remove
break 1 C
```

10: The 'Execute' command is made resident here – the reason should become apparent later in the script. The 'pure' switch is used to force-load the command even if the pure (P) bit has been reset somehow. Note that the SYSTEM switch is not used, so execute will be available to you.

11: At this point the new console device, 'newcon:', is bolted on – that is, mounted. newcon is used primarily by the Shell to give the command line editing and history functions, but it can be used by other software if required.

12: From here on in, things start to get a little weird. This raises the script failure level from 10 to 11, which will be required at line 14 to stop the script from crashing! More on that in a few moments...

13: If you have ever wondered where the message "[CLI 2]" was coming from when the machine boots Workbench, here is the reason. At this point, the startup-sequence starts execute as a second process and tells it to execute a second script, StartupII. The reason for RUNning the script is a little difficult to explain, but it just works better that way.

14: Read this one again... That's right, it really does say 'wait 5 mins' – and if the script just ran on its own that's exactly what would happen. In fact, the last command in StartupII (the one executing at this point) will send a CTRL+C break code to the Startup-sequence and break the action of 'wait'. The '>NIL:' redirection is used to stop the ****break* message appearing on-screen as this happens. Normally, if wait is stopped in this way it will generate an abnormal termination error and stop the script – the fail level was increased to 11 in line 12 to prevent this.

15: This is another one of those system – that is, non-AmigaDOS – commands. It is used to remap the default (ROM) keyboard layout to match the layout on your machine. In some parts of the United States this command will be missing completely, in the UK the 'GB' keymap is used and in other countries other files will be present.

16: According to Commodore, this sets the paths for Workbench. In fact, Workbench looks after its own paths, and this command is provided so you can run Workbench commands – Prefs, NoFastMem, NotePad and so on – without ever knowing where they are. It also ensures that the correct command (C) directory is always searched even if C: is re-assigned elsewhere.

17: This command activates the Workbench. The '-delay' is a switch which forces Workbench to wait for a short time before mounting any disks. This eliminates the otherwise inevitable inter-task disk thrashing caused by 'endcli' loading at the end of the script.

18: This line closes the initial CLI window. Redirection to NIL: is used here to stop the 'endcli' command displaying its "CLI process 1 ending" message.

LISTING 3 • LISTING 3 • LISTING 3 • LISTING 3 • LISTING 3 • LISTING 3

Slideshow – the Workbench (IconX) version

```
1.   .key dummy
2.   .bra {
3.   .ket }
4.   ask "Slideshow by Mark Smiddy*nPut the pictures disk in DF1: and press <Return>"
5.   list >T:Pix{$$} df1:#?.PIC lformat "echo *"Now showing %s%s*"*nVILBM *"%s%s*""
6.   execute T:Pix{$$}
```

Phew! You may need to read that another couple of times to get the idea, because the 1.3 Startup-sequence really is very complex and very interdependent. Take a short break now – next up is StartupII.

The legend continues

OK, now study Listing 2. This is still fairly complex, but much more repetitive than the main script and thus easier to follow. Here goes:

1-6: These six lines make six common commands resident: 'resident' (to speed disk access for the next five lines and the last three); 'list' and 'cd' for general use in Shell; 'mount', 'assign' and 'makedir' are also loaded to improve the overall speed of this script.

7: This line creates the T (temporary directory) in the RAM disk. This directory is standard on all Workbench disks and is used by AmigaDOS commands such as edit and execute to store temporary (working) files. It is placed in the RAM disk for speed.

8: And this line points the T: assignment to the directory just created in the RAM disk.

9-10: These lines do the same as lines 7 and 8, but for the env: (environmental variables) assignment. Environmental variables are not widely used by the system in Workbench 1.3, but the assignment is useful for user programs.

11-12: As in steps 7-8, these lines create and make the CLIPS: assignment. This directory assignment is reserved for use by the 'clipboard.device', but despite encouragement from Commodore very few applications actually use it.

13-15: Mount (attach) three devices new in the 1.3 release:

- **13**: speak: allows easy access to the Amiga's text-to-speech system from AmigaDOS – and other programs for that matter.
- **14:** aux: the auxiliary serial device. It provides unbuffered serial I/O so the serial port can be attached to a terminal made to behave like a second keyboard. If only it were that simple...
- **15**: pipe: Matt Dillon's pipe device provides the facility of 2K FIFO buffers to allow message passing between Shell processes. OK, that was all jargon – more about pipes and other such devices later in the series.

16-18: Remove 'mount', 'assign' and 'makedir' from the resident list and give a little bit of RAM back to the system.

19: This clever bit ties StartupII to Startup-sequence at step 14 (see the description of Listing 1). Remember, all the time this script is executing, Startup-sequence is paused by the wait command. At this point, break stops the wait command by sending it a CTRL+C just as if you had typed it at the keyboard. Neat – but unnecessary.

AmigaDOS Masterclass

A few weeks ago, my colleague Pat Winstanley and I were propping up a bar in the local and she happened to mention what a nuisance it was having to load up *Photon Paint* every time she wanted to look at some screen grabs or artwork. Although Pat is perfectly capable of using the Shell and IFF viewers such as VILBM, she found the manual selection of files a real nuisance.

The scripts given on this page are two versions of several born from that conversation. They use VILBM to display pictures from the root directory of a disk as a slideshow. (VILBM, written by *Sculpt 3D* designer Eric Graham, is in the public domain and widely available.) Much the same idea could be used to play music tracks as a jukebox and so on.

Like most of the Masterclass series, these are complete examples in their own right but are intended as launch pads for your own ideas. To keep them simple, these examples only work with dual drive systems and VILBM must be on the Workbench disk. Here's how they work – Listing 3, the Workbench version, first:

1: This is a dummy 'key' variable not used by IconX – but it must be supplied for .bra and .ket to work.

2: This changes the opening bracket character from '<' to '{'...

3: ...and this does the same for the closing bracket.

4: This prints a welcome message, waits for you to insert a disk and press the [Return] key.

5: This is the guts of the script – the meat in the sandwich. It uses the list command to create another script in T: (on the RAM disk) called PIXn – where 'n' is an arbitrary process number. It looks for files in the root directory of the disk in df1: with the extension .PIC and creates a program something like this:

```
echo "Now showing Picture1.PIC"
VILBM "Pictures:Picture1.PIC"
echo "Now showing Picture2.PIC"
VILBM "Pictures:Picture2.PIC"
```

I'll be looking at how this sort of thing works later in the series, for now you might like to experiment with it and see for yourself. This is a script which actually writes new scripts...

6: ...and then runs them for you too! If you want to use this script from Workbench, you'll have to create a project icon for it and set the default tool to IconX.

The Shell version of Slideshow (shown in Listing 4) is essentially exactly the same as the Workbench version but with improvements to take account of command line options. The synopsis is as follows:

```
SlideShow <drive number>
[filename extension]
```

Therefore, to use this program you would enter the drive number 0, 1, 2 or 3 and optionally supply the extensions used on the picture files - say PIC or IFF. You do not have to enter the full name – df0: or .IFF, for example, as the script adds those bits for you.

1: The command '.key' used here defines the command line as having one required argument (drive) and one optional argument (ext). These will ensure that the drive number is always supplied and the extension is picked up when required.

2-3: As before, we define the left and right-hand bracket characters as { and } respectively.

4: This defines the extension as .PIC in case one is not supplied. Extensions are not vital, but they are a good way of organising disks. In any case, this allows the script to separate picture files from, say dot-info files.

5: Like the Workbench version of the program, this defines the startup message which prompts you to insert a disk. Notice how the drive argument is included as part of the printed statement.

6: This line creates the program in the same way as the previous example, only this time some of the arguments sent to list are determined by the user options set at the command line.

7: And finally, run the program.

Well, that's about all for now. Next month I'll be looking at how the startup-sequence can be improved and I'll be providing instructions on how to create, edit and improve your own. AS

LISTING 4 • LISTING 4 • LISTING 4 • LISTING 4 • LISTING 4 • LISTING 4

Slideshow – the Shell version

```
1. .key drive/a,ext
2. .bra {
3. .ket }
4. .def ext .PIC
5. ask "Slideshow by Mark Smiddy*nPut the pictures disk in DF{drive}: and press <Return>"
6. list >T:Pix{$$} df{drive}:#?{ext} lformat "echo *"Now showing %s%s*"*nVILBM *"%s%s*""
7. execute T:Pix{$$}
```

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Touch and go

A hand scanner is only as good as the software that controls it. Jeff Walker investigates Touch-Up, the image-manipulation program bundled with the Golden Image hand scanner

"Many desktop publishers find hand scanners invaluable – both for rough visualisations and for producing finished artwork. This month I'm looking at the software which comes with one popular model – the Golden Image hand scanner."

Jeff Walker



Most Amiga hand scanners come with only the bare necessities in the way of software – a way to scan images and a few tools for clipping, rotating and so on. After that you are usually advised to load your scanned image into *DPaint* if you want to clean it up or make any alterations or additions.

The problem here, of course, is that even small images turn into massive bitmaps if scanned at 300 or 400 dots per inch (dpi), and *DPaint* doesn't particularly like bitmaps more than 1,024 pixels wide or more than 1,024 pixels high. At 400dpi that's not even three inches square.

To date, only one of the Amiga hand scanner manufacturers or distributors has bothered to think about this problem – Golden Image.

The Golden Image hand scanner comes with a software package called *Touch-Up*, developed in the US by MiGraph specifically for scanning halftones (like photographs) and line art (like that silly drawing of me up there), and the subsequent manipulation of the massive bitmaps created by high resolution scans. It works in three modes: Scanner, Clip and Paint. Each mode has its own clutch of powerful features.

Scanning tools

As with all hand scanners, the first step before starting to scan is to make sure that the hardware and software agree on what resolution they are scanning at, and to tell the software the maximum width and height of the scan.

Touch-Up is intelligent enough to read the scanner's dpi setting, making it impossible to have the software and hardware set to different resolutions. Width and height maximums are set by clicking on buttons in the Scan Area requester; you have the choice of full (4 inch) or half (2 inch) width, and heights of 2, 4, 6, 8, 10 and 14 inches. There's a 'Metric' button if you prefer to think in centimetres.

By clicking on these buttons you are not specifying the exact dimensions of your scan, merely the maximums; if you set the height to 6 inches and physically stop scanning after only four, *Touch-Up* will recognise the fact that you have released the scanning button on the scanner head and will return software control to you after ten seconds. Within this ten second time you have the chance to move the scanner head and begin scanning again directly underneath the first scan.

There are two ways to scan: on to the full page or into a clip area. Scanning on to the full page uses the height and width information you gave the Scan Area requester, but scanning into a clip area gives you greater control over the exact width and height of the scan.

Clip areas are set by dragging out a box. Handles around the clip area allow quick horizontal and vertical re-sizing, and fine adjustment can be achieved via the Page Clip requester, where exact measurements for the size of the clip area can be entered in either inches, centimetres (to two decimal places) or pixels. When scanning into the clip area, these sizes take precedence over those typed in to the Scan Area requester. So if you set the maximum width and height to 4 inches and your clip area to 3 x 3 inches, then you'd lose the right-most inch of the image you were scanning and the scan would stop after three inches, not four.



Left: The size and resolution of the page or current clip area can be changed at any time by altering the values in this requester. Note the thumnail A4-sized page behind the requester, shown at 'full' magnification.



Right: The outlined box at bottom right of the image is the current clip area; the little black squares around the edge are the handles used to alter the area's size by clicking and dragging.

Scanning into clip areas allows you to mix lots of different scans, at different resolutions if you like, all over the page.

Probably the most important feature in Scanner mode is the 'Writing Mode' tool. You have four choices – Replace, Transparent, XOR and Replace Transparent.

Replace means that anything you scan will overwrite everything underneath it. If you were scanning to a full page then you'd destroy whatever was on the page beforehand, but if scanning into a clip area, only the portion of the previous image or images that the scan area overlapped would be overwritten. Transparent is similar to Replace except that only the black areas of the new scan overwrite anything underneath – the white areas are see-through.

The third option, XOR, is great for creating special effects. It puts the new scan directly over whatever is already on the page, but if an area of black overwrites an area of black, it turns white. The last writing mode, Replace Transparent, first inverts the image and then turns the white areas transparent – again useful for creating special effects.

It's a good idea to check the Writing Modes tool before you do anything to an image, because whatever mode you select stays in effect until you choose a new one.

The final tool in the Scanner Mode toolbox, Save As Gray, seems a little out of place and is probably only there because the Clip Mode toolbox is crammed full. Save As Gray gives you the ability to scan a halftone (a colour or mono

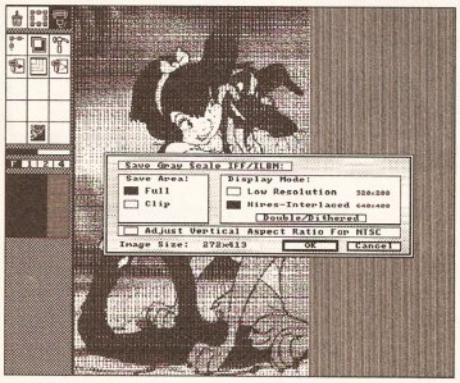
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photograph or illustration) and then save it out to disk as a 16 grey-level picture instead of the two-colour black-and-white image you see on the screen. It achieves this seemingly impossible task by a magical process called 'dithering'.

The information that the scanner head sends to the software is grouped into square matrices of cells called 'grains'. Now, the Golden Image packaging and the *Touch-Up* manual are at odds over the size of these grains; the packaging claims 64 grey levels, which would need an 8 by 8 matrix, while the *Touch-Up* manual says it uses a 6 by 6 matrix for each grain, a size which allows a maximum of only 36 grey levels – or 37 if you include white.

Close inspection of the images produced by the Golden Image scanner reveals that it does indeed use an 8 by 8 matrix, so the packaging is correct in claiming 64 grey levels. Well, almost correct, because solid white is as much a grey level as solid black, so it's actually 65 different levels. (Confusion over the size of these grains caused me to say a couple of months back that Pandaal's Daatascan hand scanner was of a higher specification than any other Amiga hand scanner. I must put the record straight here – the Golden Image hand scanner is of an equal specification: it uses the exact same head, manufactured by Marstek.)



Unique to Amiga hand scanning software is *Touch-Up*'s Save As Gray feature (which not even the ST version can do). The results are very good – much sharper than expected.



The Save As Gray tool converts each grain into either a single grey pixel, giving a 16 grey level picture one-sixth the size of the original bitmap, or a 2 x 2 grey 'double dither', which gives a picture one-third the size of the original with 31 'apparent' grey levels, although it is still actually a 16 grey level picture. The lightness or darkness of each converted pixel depends on the pattern inside the grain. Alas, the conversion routine assumes a 6 by 6 grain instead of an 8 by 8 one – because the software was written originally to work with MiGraph's own 32 grey level hand scanner – so double-dithered pictures, and those converted from images scanned using the two larger dot settings on the scanner head, often end up with an unpleasant grid pattern over the whole picture because the slightly smaller greyscale grains get out of step with the real ones.

Images scanned using the small dot setting, however, convert to sharp-looking 16 grey level images which wouldn't look out of place in any type of slideshow or presentation. Results will, of course, depend largely on the quality and contrast of the original photograph or illustration, but see the IFF of Anne and Charlie from *All Dogs Go To Heaven* (left) for an idea of what can be achieved.

Scanning an image is done in the normal manner – you tell the software whether you want to scan on to the whole page or into the clip area, then you hold down the scan button on the scanner and pull the head slowly and evenly over the image. The usual little red light flashes if you are tugging 'almost too fast' and goes out completely if it thinks it has lost data because you have gone too fast. However, *Touch-Up* doesn't do a real-time scan – in other words, you don't see the scan scrolling on to the page as you pull the scanner over the image – so it's possible to pull the head fairly quickly, much faster than the tolerance of the little red light (which probably thinks it's connected to a PC), without losing data.

Clip tools

If you can drag yourself away from filling floppies with greyscale pictures, there are further delights to be discovered hiding away in the Clip mode toolbox.

As mentioned earlier, a clip area is created by simply dragging out a box over the area you want to clip. A box appears on-screen with 'handles' on all four corners and in the middle of all four sides, any of which can be dragged to increase or decrease the size of the clip area. Once you've got it to the size you want, you can drag the box freely about the page in one of two ways: either on its own, which makes the area of the image under the newly-positioned box the current clip area, or you can hold down the [Shift] key while dragging the box, which moves the part of the image enclosed by the box as well, in the same way that you pick up and move a rectangular brush in *DPaint* and other art programs.

Clip areas can be re-scaled by holding down [Shift] while dragging one of the handles, but using this method there is no way to enlarge or reduce by an exact percentage, nor any way of preserving the original aspect ratio, so results can be a bit hit and miss.

If you need exact re-scaling (although remember that most Amiga DTP packages can do this anyway) you can achieve it by saving the clip area, creating a new clip area which is, say, exactly half the dimensions of the first (by adjusting the Clip figures in the Page/Clip tool), and then loading the saved clip into this new clip area.

Zoom in, zoom out

Of course, it's entirely possible that the area you want to clip exceeds the boundaries of a normal Amiga screen, and this is where the *Touch-Up* Zoom tool comes in handy. As well as 100, 200 and 400 per cent magnifications, there's also a Full option to view the whole page. If the page is very big, what you see on-screen is just a thumbnail sketch of the actual image, but it's usually plenty good enough to drag a box over the approximate area you want to clip – fine adjustments can then be made at a higher magnification if this is deemed necessary.

All the Clip tools will operate while in Full magnification, which means that you can manipulate the clip area while still being able to see the whole page.

Three types of flip are available: Horizontal, Vertical or Both. A simple 1,000 by 1,000 pixel line art scan takes about 15 seconds to flip horizontally, five seconds vertically and (surprise, surprise) about 20 seconds to flip both ways at once. A more complicated and larger 2,000 by 2,000 pixel halftone scan takes about a minute to flip horizontally and under ten seconds to flip

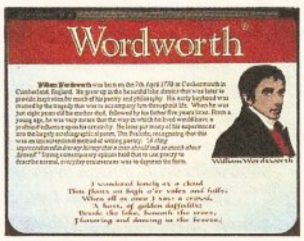
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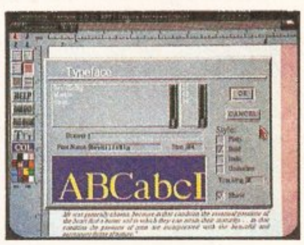
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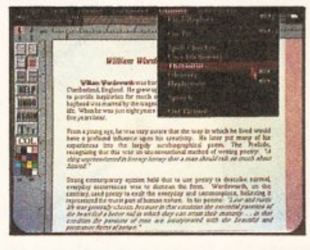


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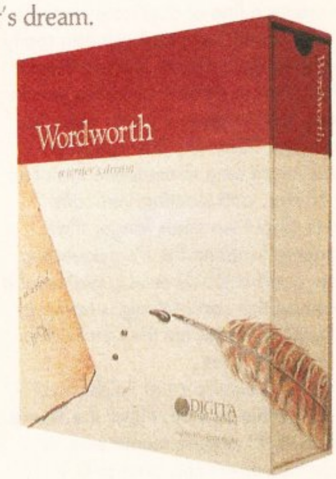


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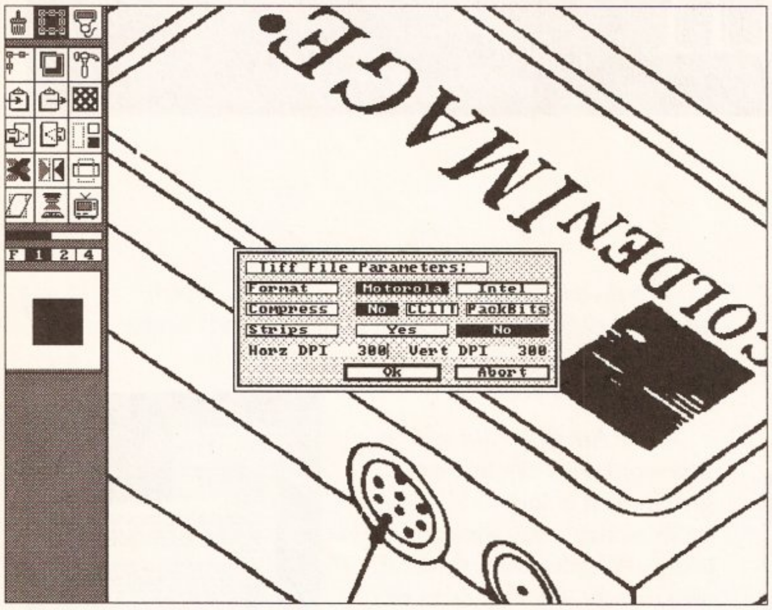
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vertically. These may sound like long times, but considering the enormous amounts of memory *Touch-Up* is having to shunt about, a short wait is only to be expected.

Touch-Up's Mirror tool takes about as long to execute as Flip, and is very similar except that it produces a mirror image of the clip area



Touch-Up knows all about the different TIFF 'standards'. *PageStream* users may like to work in TIFF because this file format contains dots-per-inch information.

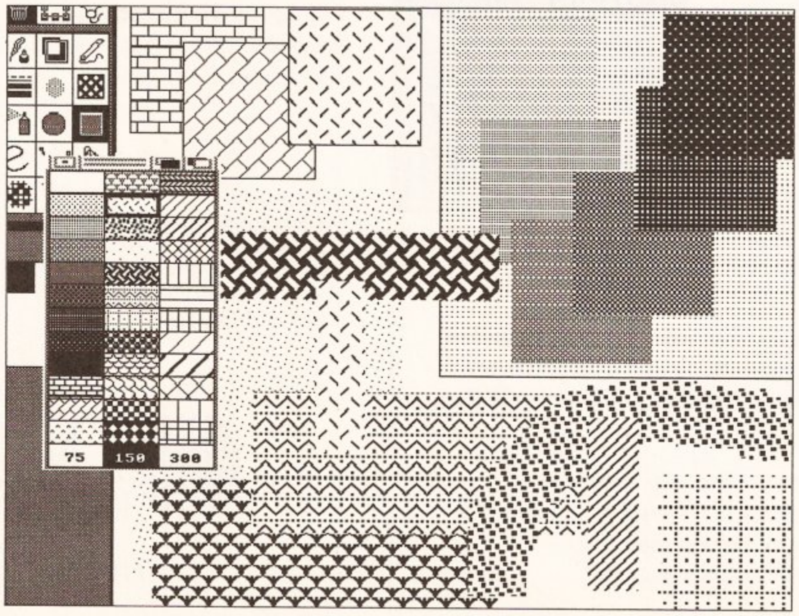
above, below or to the right or left of the original clip area. Tiling or border effects can be easily achieved by holding down [Shift] while mirroring, which makes the mirrored section become the current clip area – so you just mirror, mirror, mirror... to create a line of duplicate images.

With the Slant tool you can really begin to mess about. Slant is like the Shear tool in *DPaint*, allowing you to slope the image to the left, right, up or down. Naturally this operation takes more time to complete than Flip or Mirror, and slanting vertically takes about ten times longer than slanting horizontally. It's astounding how good a job *Touch-Up* makes of it because this sort of thing is normally a sure-fire recipe for the Too Bad To Use Jaggy Blues.

But *Touch-Up*'s not finished yet – it can rotate as well; either the whole page in 90 degree increments, or only the current clip area in 0.1 degree increments.

There are two important buying points here. The first is that the two most popular Amiga DTP packages, *PPage2* and *PageStream2*, can only rotate in one degree increments. This makes *Touch-Up*'s Rotate tool literally ten times more useful than it may at first appear. And, of course, if you're using an older version of one of those DTP packages, or *PageSetter II*, none of which can rotate graphics at all, then *Touch-Up* will be an absolute blessing to you.

The second point is that *PPage* and *PageStream* slow down considerably when dealing with rotated bitmaps, both on-screen and while printing. So if the bitmap is rotated to the desired angle in *Touch-Up* first – which admittedly can take between 10 and 30 minutes depending on what you are asking it to rotate – you can import an upright bitmap with a rotated image on it into your DTP package, which will speed up screen refresh and, probably more importantly, the time it takes to output the page which has the rotated bitmap on, because the DTP program doesn't have to do any calculations.



There are 36 well chosen fill patterns which can be displayed and output at 75, 150 or 300 dots per inch. The 'screen' patterns at top right are useful as masks to lighten or darken halftone scans.

On top of this, regular *Amiga Shopper* DTP readers will know that I am not over-impressed by *PageStream 2*'s bitmap rotation, so *Touch-Up* is a way of improving the output. Comparing the same bitmap rotated to the same angle with *Touch-Up* and *PPage 2*, the difference in quality between the two is negligible – *PPage* probably wins by a whisker, but the time saved in printing the page is well worth the minute drop in output quality.

Dealing with colour

Of course, we're only talking black-and-white bitmaps here – *Touch-Up* doesn't work with colour.

Actually, that's not completely true. *Touch-Up* will import colour graphics, but it has to convert them to black-and-white before letting you play with them. It does this by again using different dither patterns to represent the different colours – this is called 'colour mapping'.

You have an astounding degree of control over this process. First, there are three 'simple' colour mapping methods: Some, Most and All. These work by converting all colours which contain more than a certain percentage of black to solid black – handy for creating a silhouette-type image with highlights.

Then there are the two classic colour mapping algorithms, Burke's and our old Preferences friend, Floyd-Steinberg. Both of these can be forced to work from left-to-right only – which produces the expected textures but sometimes distorts the image – or left-to-right-then-right-to-left, which produces fewer distortions but results in different textures.

And there's more.

Next come eight different dither pattern algorithms – one 2 by 2 pixel matrix, one 3 by 3 matrix, three different 4 by 4 matrix algorithms (Concentric, Net Point and Bayer), and three different 6 by 6 matrix algorithms (Concentric, Net Point and Balance Net Point).

Which of the 15 methods should you use? Well, that's the fun of it. There is no hard-and-fast rule that can tell you which method is going to work best. What does a good job on one colour picture can make a right pig's ear of something else. You have to experiment, which takes time I know, but if you save as you go, do print-outs and make notes, you'll soon become an expert on colour mapping and be able to impress people on the bus by showing them your dithers.

Filing tools

But we're wandering from the subject of clip areas here, which I haven't finished talking about. We've got the filing tools to discuss yet.

First of all there's the clipboard, which you can copy to and paste from. While working on an image, this avoids messing about saving temporary files, although you'd be well advised not to depend too much on the clipboard because through necessity *Touch-Up* uses a lot of memory. And we all know what the Amiga has a habit of doing to programs when they run short of memory. Unless you've got stacks of RAM, get into the habit of saving as you go. (It never ceases to amaze me how many word processors have an autosave feature, whereby the program automatically saves the document you are currently working on every so often, yet I've never come across an art or DTP program which does the same.)

Touch-Up can save the whole page or the current clip area in a variety of graphic file formats. There's the standard Amiga IFF format, of course, but also IMG, EPSF, PCX, TIFF, Degas, GIF, MacPaint and PrintMaster. It can load (and display) IFF, IMG, PCX, TIFF, MacPaint and PrintMaster files as pages (only IFF and IMG into a clip area), which means you can convert between various file formats by loading them in and then saving them out in a different format.

If you load a colour picture into a clip area, by the way, it gets automatically converted to a black-and-white dither pattern; a handy tip there if you want to avoid the colour mapping requester.

The ability to save in Encapsulated PostScript Format (EPSF) gives the program an air of professional respectability, and *PageStream* owners may be able to make use of the TIFF format, which contains dots-per-inch information.

Ah yes, dots-per-inch. This is another sexy feature of *Touch-Up*.

When you're looking at your scan on the *Touch-Up* page, it's obviously at a much lower resolution than that of your printer – an image that appears to be (say) four inches square at screen resolution will output a lot smaller at the 300 or 360dpi of your printer. How much smaller? That's where the 'DPI' information in the Page/Clip requester helps. Change the X and Y resolution to that of your printer – 300 by 300 for a laser or 360 by 360 for a 24-pin dot-matrix, for example – click on the word DPI (which is a 'hidden' button) and the page/clip measurements adjust to the correct size for those dpi figures.

I'd better point out to the hard of thinking that this doesn't actually alter the screen resolution – that has to remain fairly constant until someone invents the malleable pixel – it merely adjusts the measurement figures so you know the exact output sizes that you are working with.

It's via this Page/Clip requester that you can change the size of the *Touch-Up* page. How large a page you can have will entirely depend upon how much memory you have, but remember that this isn't a page makeup program – the idea is to scan images, clean them up or manipulate them in some way, save them and then load them into your desktop publishing program. So there is no need to create A4-size pages at 360dpi or anything like that. You'll get away with 1Mb, but the more memory the better is always the order of the day with scanning software.

Changing the size of a page doesn't destroy any images you have on it. You get the choice to wipe the page clean, if that is what you want, otherwise *Touch-Up* will simply adjust the page size. If the new size is smaller than the original, then it will be cropped right and bottom, losing the parts of any images that were in those areas.

The TV Viewer is a helpful aid to loading IFF and IMG clips on to a page. It gives you a thumbnail preview of the image you want to load, dithered if it is a colour picture, plus information on its file size, aspect ratio and dimensions in pixels. If, after previewing the clip, you decide that yes, this is the picture you were looking for, clicking on a button will set the current clip area to the picture's pixel dimensions.

The one clip tool I've not mentioned yet is arguably the most powerful of the lot: the Process tool. This is the chappie that makes cleaning up or enhancing a scan a piece of Mr Kipling.

There are four processing tools: Bold, Cleanup, Outline and Mask. The first two are fairly straightforward. Bold can be used to enhance a light scan by adding additional pixels to the image in the horizontal or vertical direction, or both. Cleanup removes stray black and/or white pixels from a scan which appears 'dirty'.

Outline is a little difficult to explain. Umm... it draws a closed line around any black areas within the clip area. You'd use it when you had silhouette-type clip art – a solid black-and-white picture with no fill patterns. After using the Outline tool all the solid black areas within the clip area would turn white and be enclosed by an unbroken black line. Now you can go into Paint mode and fill these areas with any of the 36 fill patterns. Get the idea?

The Mask tool creates special effects using the aforementioned fill patterns. A deal of experimentation is needed to find out what kind of mask works best on what kind of image, but the idea is that you can lighten or darken areas of a scan by overlaying the black or white areas with a pattern, which is especially useful with scans of halftones. With good reason, the manual advises you to save your image before using Mask if you are unsure of the results.

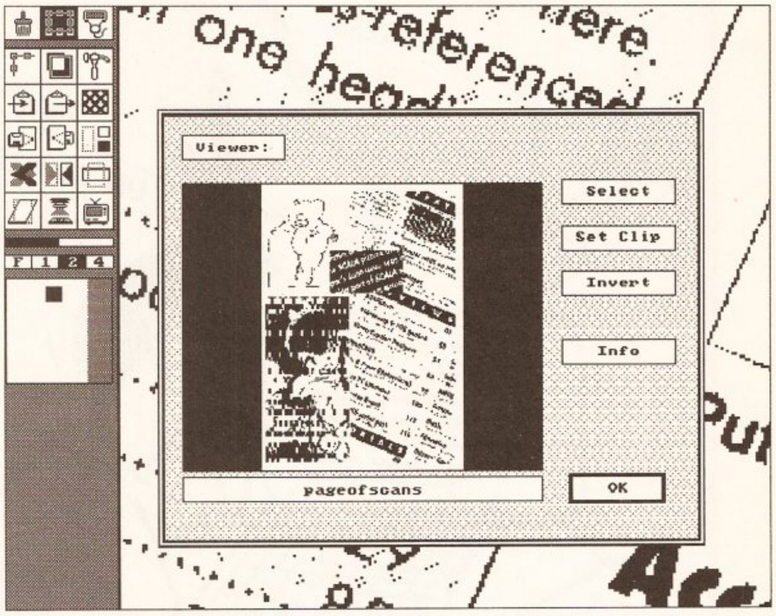
Paint your wagon

All this talk of fill patterns brings me on to the third group of strings to *Touch-Up*'s bow, the painting tools.

It's perfectly feasible to use *Touch-Up* as a kind of black-and-white *DPaint*, never going anywhere near a scanner. But it works in a different way to *DPaint*, so it may take a little getting used to.

Almost every drawing operation is based on the 'brush' idea. By that I mean that you first create a brush using the left mouse button, which might be a circle or a straight line or a fancy curve or something 'picked up' from what's already on the page. Then you fix its shape with the right mouse and use the left mouse button to paint with it.

A simple example would be a straight line. In *DPaint* you press and hold down the left mouse button where you want the line to start, move the pointer to where you want it to end, then release the mouse button to fix the line in that position.



The TV Viewer is a useful tool for searching floppies or hard drive directories for the picture you need. Once found, the current clip area can automatically be set to the picture's dimensions.

In *Touch-Up* it's a little more complicated, but a lot more versatile. First you select the Lines tool and then Polyline from the pop-up menu. Then you drag out the line in a similar manner to *DPaint*. Now things start to get different. At this stage your straight line is still connected to the mouse pointer, so you can move it about the page. If you left-drag the mouse (left drag = hold down left mouse button and move the mouse) you can continue to adjust the length and angle of the line.

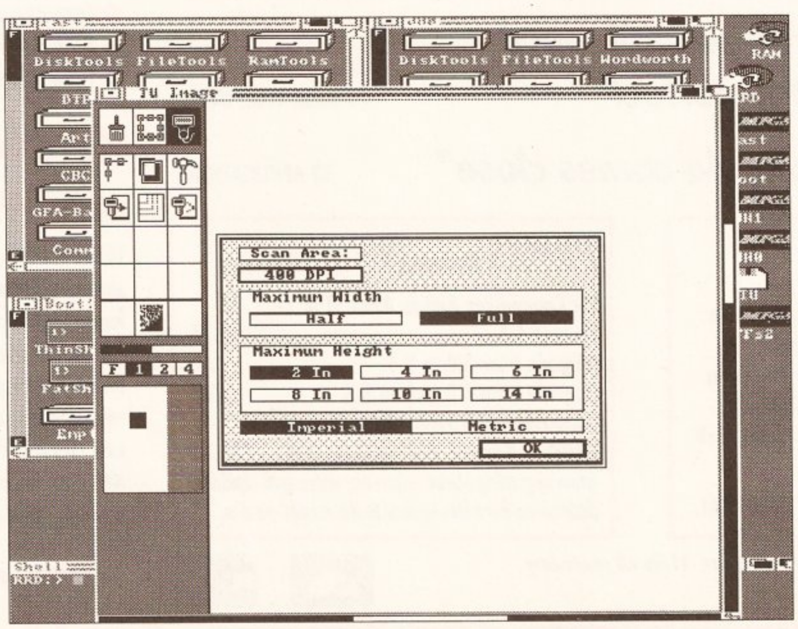
Clicking the right mouse button fixes the line at that length and angle. Now if you left drag the mouse a new line sprouts from the end of the first. By repeating these steps you can create a brush of any shape that you like as a series of up to 127 connected straight lines. To finish creating the brush, double-click the right mouse button, at which point a square 'handle' appears on the brush at the place where you first started drawing. Now you can actually start drawing. Clicking the left mouse button plants one copy of the brush on the page. Left dragging paints with brush.

So what's this 'handle' all about? Well, perhaps after planting the brush you can see that you haven't got it quite right. By holding down [Shift] while left dragging you can adjust the length and angle of the lines between the handle and the other points it is connected to – adjust the shape of the brush, in other words. By pressing the arrow keys you can move the handle to any of the other 32 control points, so the brush remains adjustable for as long as it remains a brush.

Although creating a new brush destroys the previous one, anything on the page can be picked up again later with the Lasso tool and used to draw with in the same way that you pick up and draw with brushes in *DPaint*. But you can't adjust lassoed brushes as the control point information has been forgotten.

I know it all sounds highly complex, but I swear on my copy of

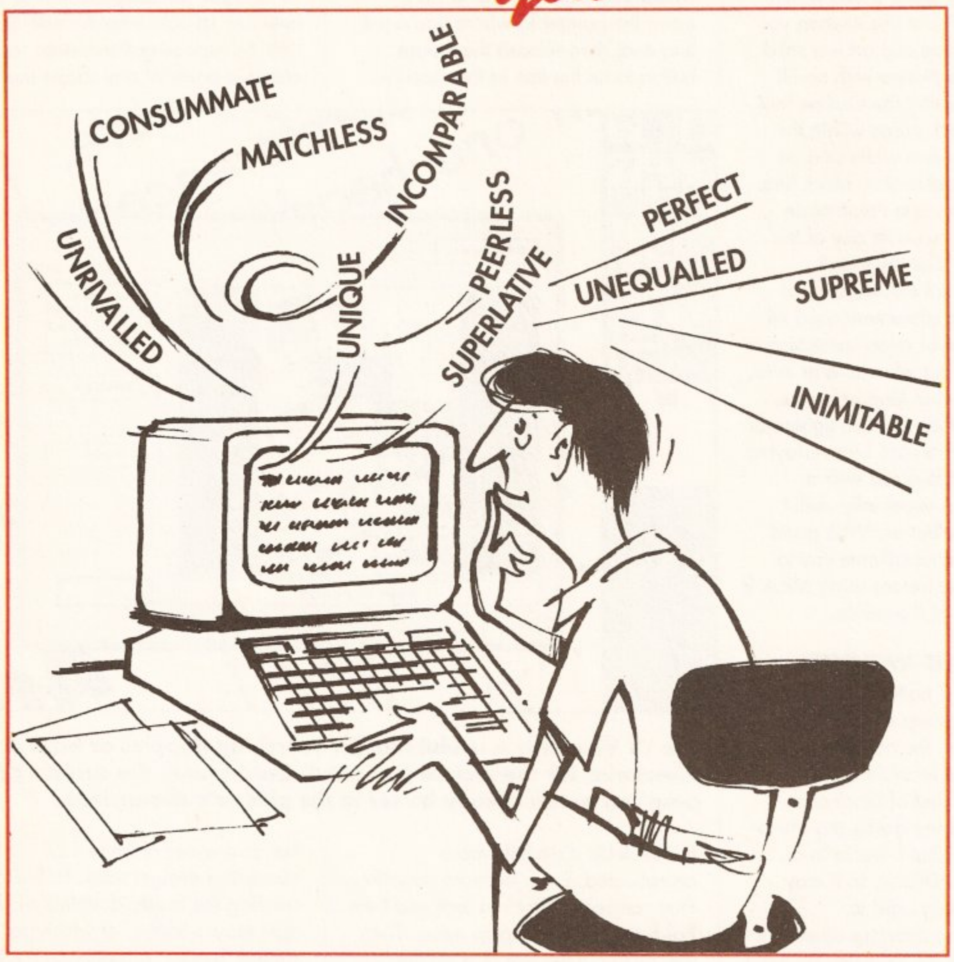
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Entering the maximum dimensions of your scan. Notice that *Touch-Up* sits on the Workbench, so if you want to run in interlace you'll have to alter the preferences setting and re-boot.

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PPage that you'll quickly get used to this way of working and very soon start to wish that all other programs did it this way.

The Lines/Sketch tool works in the same manner. You left drag the mouse about a bit, creating what looks like a continuous but rather wobbly line. In reality, though, it is a series of up to 127 very short connected straight lines. Along the line will be up to 32 control points, and you can move the handle to any of these and shift-drag to alter the wobbly line's shape.

Curves are a bit different. There are two types, Bézier and B-Spline, both of which take a little getting used to. Bézier curves are the easiest to explain. Imagine you've selected the Bézier Curve tool. You click to place four control points on the page one after the other in a straight line, left to right. The outermost points are the anchor points of the curve, the two inner points 'describe' the curve.

Now, what we have at the moment is a straight line, but if we pick up one of the inner control points and drag it towards the top of the screen, the line between the anchor points begins to bend upwards. In the same way, if we drag it to the left, to the right or down, the line follows suit, always keeping to a curve. So to create a curve that looks like an 'S' on its side you would drag the inner-left control point up and the inner-right control point down. You can drag the anchor points as well. Drag the right one up and to the left and you can turn the curve into a 'twist'.

Now imagine that instead of only four control points, the curve can have up to 32... and you know what a B-Spline curve is. You can insert and delete control points in a B-Spline curve as well. Confused? You will be – for a while, at least. But there's no doubt that once you get used to the way Béziers and B-Splines work, it's far easier and quicker to draw the exact curve you want by dragging these control points (aka handles) around than by attempting to do it using some kind of freehand tool.

Lines, fills and sprays

There are six different line styles to choose from – one unbroken style and five dashed. By switching edges on and off in the Line Style requester you can draw filled shapes with or without borders.

The 36 fills at your disposal have been well chosen, and each can be rendered at 75, 150 or 300 dots per inch; this is so the pattern is output to your printer correctly. Place a fill pattern on-screen at 75dpi and then print it at 300dpi, and the pattern produced on the paper will be too small to discern. Place it at 300dpi, and while it looks ridiculously large on-screen, it will print out exactly as it is supposed to.

The Spray tool can use a small, medium or large-sized square or circular brush, and can spray with black dots, white dots or the current fill pattern at eight saturation levels between 12 and 100 per cent. The flow rate can be adjusted via a slider; slow flow gives better control for delicate work, fast flow covers large areas quickly.

Like any good paint program, *Touch-Up* has Undo and Zoom tools for correcting mistakes and working with the fiddly bits. Undo has two levels. Pressing the [Del] key undoes the last thing you did. If the last thing you did was an undo, then undo undoes the undo(!). Pressing [Shift]-[Del] erases all the changes you made since you last clicked the Paint icon, pasted the buffer information on to your page (by pressing [F10]), or scrolled to a different part of the page. So [Del] is Little Undo and [Shift]-[Del] is Big Undo.

Touch-Up calls its zoom tool Fatbits (which is the same name that Apple gives to this type of work on the Macintosh), and it only has one magnification level. After clicking the Fatbits icon you move a rectangle over the area you want to zoom in to and that area then appears magnified to cover almost the whole of the screen, bar a small area down the left which shows you the selected region unmagnified.

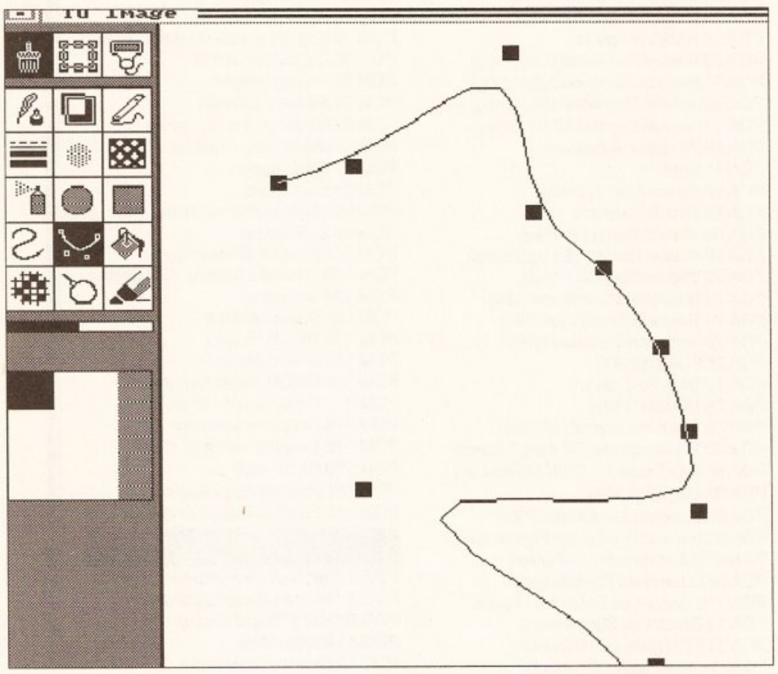
Inside Fatbits, pixels are drawn by clicking on them. Clicking on a white pixel turns it black, and vice-versa. You can't scroll in zoom mode, nor change the size of the window. However, neither restriction is much of a hindrance.

Read all about it

A program as fully-featured as *Touch-Up* needs a large manual with a comprehensive reference section and easy-to-follow tutorials. And that's exactly what you get. It's a damn good read (definitely in my top ten manuals list) with an example of a tool's operation on almost every page. I took it to bed with me and at 3am I couldn't stand it any longer, I had to come downstairs and have a play. (Then I fell asleep at the keyboard and woke up with a dog's wet nose in my armpit and YTREWQ stamped across my forehead.)

It has to be said that *Touch-Up* isn't the fastest program around. It feels positively clunky most of the time, especially if you are used to *DPaint*. The early version I used (V1.01) had a nasty bug that sometimes caused the Amiga to Guru when saving IFFs; a V1.1 upgrade from MiGraph fixed this, but I'm fairly sure that the *Touch-Up* being shipped with the Golden Image scanner is still the old buggy version. Alas, no one distributes *Touch-Up* in the UK as yet, so you'll have to contact MiGraph in the States to ask about upgrades.

As mentioned at the start of the article, the Golden Image hand scanner is the only Amiga hand scanner that comes with software powerful enough to make it more than just another expensive toy. Golden Image deserves much credit for not taking the cheap-and-easy option, as all the others have done, including two (at the time of writing) which are yet to be released. AS



A B-Spline curve. Each of the black squares is a control point, or 'handle', which can be dragged to alter the shape of the curve.

Shopping List

JS-105-1M hand scanner and Touch-Up software £149.95
by Golden Image (UK) Ltd
Suite 12a, Millmead Business Centre,
Millmead Road, London N17 9QU.
☎ 081-365 1102
and MiGraph Inc
200 S. 333rd St, Suite 220
Federal Way, WA 98003
USA.
☎ 010 1 206 838 4677

Checkout
Golden Image scanner and software

Hardware 16/20
The hardware is the standard Marstek 105mm unit, featuring 100-400dpi, four scan modes and a brightness wheel. The interface has been designed to fit in with the Amiga architecture – it's the same colour with bas relief company logo, proving that somebody thought about it rather than simply cobbling together yet another 'cheap little black box'.

Software 18/20
Smashing stuff; eons of enjoyment as you discover one neat feature after another, even months after you first start using it. There are very few features missing – only specialised things like the ability to load and display EPS files, for example.

Ease of Use 10/15
Like any complex software, there is learning curve to travel along. It'll be hell on Earth for the first few weeks, then, as understanding begins to sink in, you'll love every minute of it.

Speed 6/10
It's difficult and perhaps unfair to criticise a program for lack of speed when the jobs it has to do involve massive amounts of number crunching and memory management. But *Touch-Up* is certainly not the fastest of programs.

Documentation 9/10
A 170-page A5-size manual, well written, well designed, with plenty of simple examples and detailed explanations. There's a good tutorial to follow, a few pages of scanning tips, and even blank pages after some sections for you to make notes on.

Price 23/25
Three or four months ago this scanner had a retail price of almost £300. It now retails for half that figure. It is, without a shadow of a doubt, the best value hand scanner available for the Amiga...

AMIGA SHOPPER 82/100

...and without another shadow of a doubt, of those currently available and because of the excellent *Touch-Up* software, the Golden Image JS-105-1M is the best all-round Amiga hand scanner by a long, long way.

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PDU 32 Fish#144 Analytic spreadsheet
PDU 43 Fish#203 Assembler & C eg
PDU 44 Fish#215 Mandelvroom V2.0
PDU 45 Fish#210 Scientific calculator
PDU 46 Fish#213 Icons(300 in 8 colors)
PDU 51 Fish#219 Astronomy program
PDU 52 Fish#52 A-Z Text Editor
PDU 60 Fish# 237 CLIprint
PDU 70 Fish 193 Keymap Editor
PDU 72 SID V1.06 The ultimate disk util.
PDU 80 Fonts and Surfaces
PDU 81 Disksalve 1.3
PDU 98 Celtics Demomaker
PDU 99 Ham Radio utils(5 disks)
PDU 101 Menu-Maker
PDU 102 Label designer
PDU 103 Icon-Maker
PDU 104 Icon-Mania
PDU 105 Crossword Creator
PDU 118 Various CLI utils
PDU 149 Icon Fun
PDU 151 Fixdisk-disk repairer
PDU 164 Games Music Creator
PDU 168 Vaccine-Booster(Virus killer)
PDU 169 QuickBase-Database
PDU 185 ANC22 (Excellent utils)
PDU 186 Falcon Bootblock Creator
PDU 194 Pman Virus Killer
PDU 200 Virus Killer Pro V2.0
PDU 207 Perfect Sound V1.93
PDU 257 Fish#349 MED V 3.00
PDU 262 MED Modules
PDU 318 Red sector demo maker
PDU 349 Master virus killer V 2.1
PDU 358 Tetracopy

DEMOS

PDD 1 Anarchy Demo
PDD 4 Deathstar Megademo(2 disks)
PDD 7 Elvira Demo
PDD 14 RAF Megademo(2 disks)
PDD 16 Robocop Demo
PDD 20 SAE Demo#25
PDD 21 SAE Demo#32
PDD 31 Anarchy"Ooh its obscene III"
PDD 51 Hacktrick#1 Arsewipe
PDD 52 Hacktrick#2Smashing day out
PDD 55 Kefrens Megademo 8(2 disks)
PDD 62 Northstar Megademo#2
PDD 70 Rebels Megademo
PDD 72 Red Sector Demodisk#4
PDD 73 SAE Demos#23
PDD 74 SAE Demos#36
PDD 75 Scoopex Demos
PDD 76 Scoopex Megademo
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PDD 107 Budbrain I (2 disks)
PDD 115 Magnetic Fields Demo#40
PDD 116 Magnetic Fields Demo#41
PDD 130 Chubby Brown
PDD 131 Crionics Demo
PDD 132 Giants Megademo(2 disks)
PDD 134 Magnetic Fields Demo#45
PDD 145 SAE Demo#31
PDD 152 Flash"No Brain No Pain"(2)
PDD 153 Billy Connally Demo(2 disks)
PDD 160 Hacktrick"Rave-on"
PDD 177 Budbrain II
PDD 179 Crionics Total Destruction
PDD 186 Flash Demos#2
PPD 209 Rutger Demodisk
PDD 212 Space Pack#32

ANIMATION

PDA 9 Knight Animation(1 meg)
PDA 12 Agatron Star Trek Anims 2
PDA 13 Agatron Star Trek Anims 17
PDA 14 Puggs in Space
PDA 18 Miller Lite Advert
PDA 31 Nude Girls Anim
PDA 34 Basketball Anim
PDA 35 BFPO Slideshow(18+)
PDA 36 BFPO Slideshow#2(18+)
PDA 41 Digiviewer Slideshow
PDA 42 Dragons Lair Demo
PDA 45 Monocycle & Sportscar(1 meg)
PDA 47 Holsten Pils Advert
PDA 49 Mayfair Vol.23 no3(18+)
PDA 50 Mega Clean Show V1.7
PDA 54 NASA Graphics
PDA 56 Newtek Demoreel1(2)(1meg)
PDA 57 Newtek Demoreel3(2)(1meg)
PDA 56 Newtek Demoreel1(2)(1meg)
PDA 57 Newtek Demoreel3(2)(1meg)
PDA 58 Paradise Slideshow
PDA 61 Sabrina
PDA 63 Space Anims(1 meg)
PDA 65 Star Trek Anims
PDA 68 Walker Demo1 (1 meg)
PDA 69 Walker Demo1 (2meg,2disks)
PDA 70 Walker Demo2(1 meg)
PDA 73 Westcoast Cracker#4(18+)
PDA 74 Bodeans Bordello#1(18+)
PDA 75 Bodeans Bordello#4(18+)
PDA 76 Playboy(18+)
PDA 77 Sam Fox(18+)
PDA 78 Utopia#1(18+)
PDA 79 The Final Ecstacy#1(18+)
PDA 80 Walker Demo 2(2 meg,2 disks)
PDA 81 Ray Trace Art.DBW Render util
PDA 86 Utopia#4(18+)
PDA 89 Bodeans Bordello#9 (18+)
PDA 90 Bunsen Burner-Jet Fighter anim
PDA 92 D.Landers Sci-fi Show#1
PDA 93 D.Landers Sci-fi Show#2
PDA 110 Bruce Lee Enter the Dragon
PDA 11 Bruce Lee Slideshow II
PDA 112 Dragons Lair II Demo
PDA114 Neighbours Slideshow
PDA 116 Terminator

MUSIC

PDM 5 MFI'Electric CLI IV'
PDM 6 Winkers song(2 disks)
PDM 9 Ride on time & Batdance
PDM 19 Bad-M.Jackson
PDM 20 Bat Dance
PDM 27 DMOB Megamusic III
PDM 28 Enemies Music III
PDM 30 Digital Concert II
PDM 31 Digital Concert III
PDM 33 Helloween'Follow the Sign'(2)
PDM 35 Think were alone now-Tiffany
PDM 36 Land of Confusion-Genesis
PDM 38 Miami Vice Theme (4 disks)
PDM 40 MFI Vangelis Demo
PDM 65 Digital Concert IV
PDM 72 Popeye meets the Beachboys
PDM 80 Digital Concert VI
PDM 82 Freddy Kruger
PDM 83 Kefrens Jukebox
PDM 84 Madonna-Hanky panky
PDM 85 Miami Vice-Crockets Theme
PDM 87 RIP Eruption
PDM 88 Slab Music
PDM 91 100 Most Remembered C64 tunes
PDM 95 Hi-Fi Demo
PDM 104 BassX#5 Power Remix
PDM 105 BassX#6 Sydney Youngblood
PDM 106 Betty Boo
PDM 109 Depeche Mode
PDM 110 DMOB Music I
PDM 111 DMOB Music II
PDM 112 DMOB Music IV(2 disks)
PDM 117 Flash Gordan (2 disks)
PDM 118 Hacktrick 'Loadsamoney'
PDM 120 Laurel & Hardy (2 disks)
PDM 128 NASP V2.0
PDM 131 Petshop Boys Remix#1
PDM 132 Petshop Boys Remix#2

GAMES

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PDG 2 Star trek (3 disks,2 drives)
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Public schooling

This month Pat Winstanley makes her choice of the best PD education software available

> **"It's all very well using the computer to help teach your kids, but the cost of the software can become prohibitive. Fortunately, though, public domain can come to the rescue for the hard-of-pocket."**
> **Pat Winstanley**

BEGINNERS START HERE

Public domain (PD) programs are often just as good as their commercial counterparts but at about a tenth of the price. The PD disks contain programs which the authors have made freely available to the public at large and as such can be copied with no fear of becoming a 'pirate'.

Sometimes the author is willing to let you try a program out then trust you to send a donation if you like it and continue to use it – this system is called 'shareware'. Its success depends on your honesty – often severely strained when the shareware author is in the United States and wants the donation in dollars. Several PD libraries are operating a system now where they collect donations in Sterling then pass a lump sum over to the author covering a whole batch of registrations. It's well worth registering, since apart from gaining a clear conscience, you will usually receive printed documentation together with the latest upgrade of the program and news of availability of other related software. Shareware authors encourage copying and distribution of their products since the wider the audience the greater number of payments they will receive.

Yet another way of obtaining cheap software is to buy 'licenseware'. This is not freely copyable, but instead of having fancy packaging and oversized boxes, disks are distributed with the documentation as 'read.me'

continued on page 108

Most of the educational software mentioned over the past few months has been 'full price' – that is, costing £15 - £30 to buy. If, like me, you can't really afford to splash out that kind of money only to find that the kids hate a program or topic, or are simply not interested in anything except zapping aliens, why not have a look at the public domain?

Here you will find a good selection of disks at prices which won't break the bank. Often the programs are just as good as those found in the shops, but PD costs anything from £3.50 right down to 89p. In some cases programs don't have the depth of commercial offerings, but it's an excellent way of finding out what type of games interest the kids and which leave them totally cold.

The following disks are fairly representative of what you can obtain from PD libraries, and even if you already own some commercial educational software they are well worth a look to provide some variety for the sprogs without breaking the bank.

LEARN & PLAY

Learn & Play disks 1 and 2, available from the Riverdene public domain library as disks Mis637AM and Mis638AM respectively – £2.50 each.

These disks contain a mixed bag of programs – both by quality and age group. Each selection contains a variety of straight educational titles together with several simple games.

Disk 1's educational offering is *Blackboard Math*, a nicely presented maths driller with the twist of having a hand chalk the sums on to a blackboard. Unfortunately the program appears to have a few bugs in it. Out of two copies supplied for review, one 'Gurued' virtually at once, while the other ran reasonably well at lower levels but took on a life of its own at higher levels. Since this consisted of flashing sums and answers on the screen without pause it made the exercise of practising arithmetic rather redundant. This is a common problem with PD programs, as untested copies are often released for the public to act as testers and report bugs back to the author.

Also on the disk is *Concentration*, a beautifully presented memory game (turning over cards in pairs to make a match) with the added interest of matching pairs being removed from the table to gradually reveal a word hidden below. This has a two player option and is well worth a look.

Cat and Mouse has both adults and children in stitches. The screen shows a mouse, controlled by the player, which races round gobbling wedges of cheese while being chased by first one, then two equally hungry cats. A simple idea which would be excellent for co-ordination training if it wasn't quite so fast.

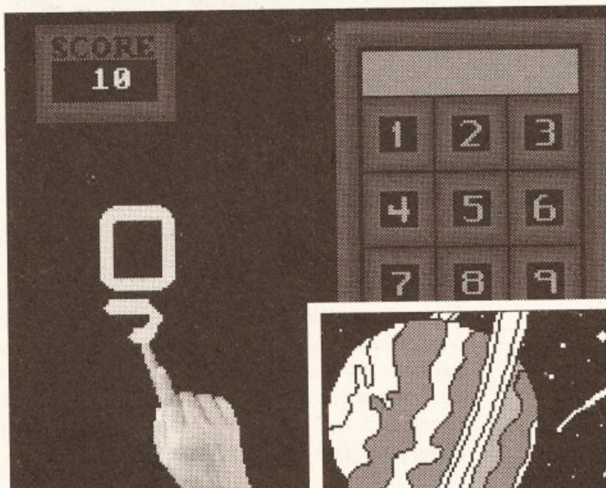
Galactic Worm is another reflex-based game, where the player controls a hungry worm. Dotted around the screen are pieces of fruit which the worm eats on contact – each ration increases the worm's length. Unfortunately the worm moves only horizontally or vertically, so tight turns see the unfortunate creature eating its own tail. Again good for co-ordination, but far too fast for smaller children to control.

The last of the game programs is *Shark*, which is more of a demo than a game and consists of a terrified frog swimming around with a pair of ferocious sharks. However, the worm (sorry, frog) turns with a vengeance when the fire button is pressed, and transforms into the teenage mutant equivalent with a rapid-fire flame thrower… "Frying Tonight"?

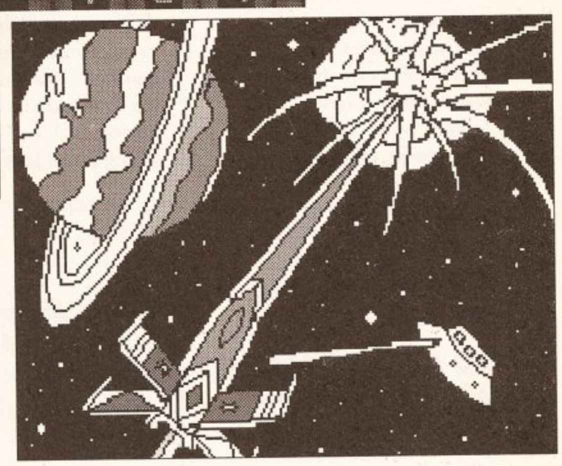
If all that's too much for your nerves, how about *Color Pad*, which offers a choice of four skeleton paintings for colour filling. In addition to the pictures supplied, you can create your own with standard art packages for loading into the game.

Disk 2 is something of an enigma. Again there was a program which refused to run, this time *Wheel*, a phrase guessing game based on a television show. Unfortunately this puzzle-style program is exactly the sort which makes the Amiga such a good vehicle for educational exercises in

continued on page 108



Left: *Blackboard Math* – work out the sum as they are drawn on the board. A nice idea, but unfortunately the program seems too riddled with bugs to be useful at anything more than the easiest levels of play.

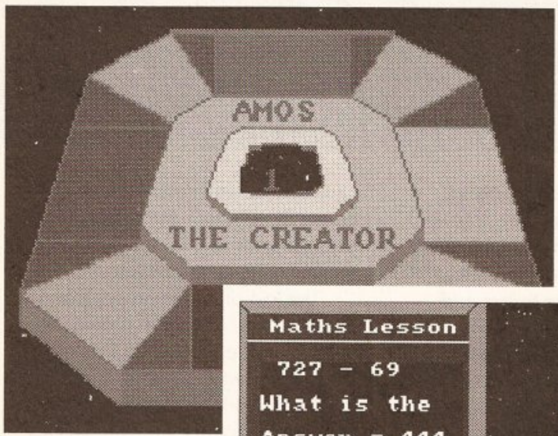


Right: To relieve the boredom of a straight lesson, many educational programs provide light relief in the form of a 'shoot-'em-up' from time to time.

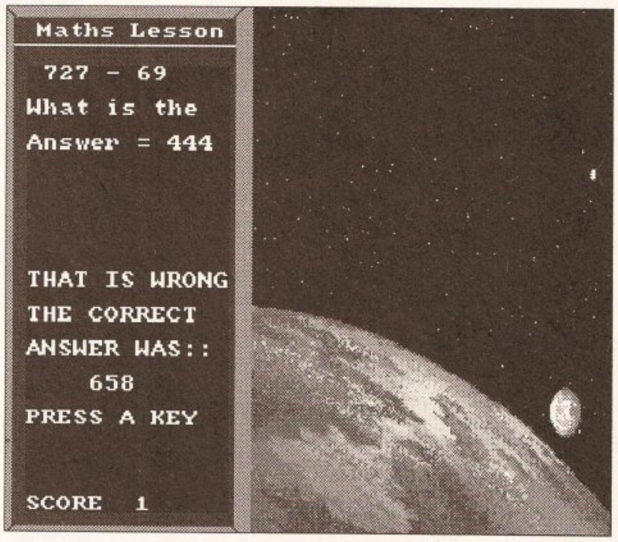
continued from page 107

disguise. The other overtly educational offerings on the disk are *Spellquiz*, *Multidrill* and *Addidrill*. Of these, the two arithmetic programs worked well but were pretty uninspiringly presented, while the spelling section seemed to work. I say seemed to work since all I could get it to do was accept a list of words from me then apparently ask me to type them back in from memory (remembering which words I'd entered).

As usual on compilations of this type, a Hangman-style game is included. The theme of *Tug* might be hackneyed but its angle isn't. This is a two-player game where each player types a word for the other to guess (no peeping allowed during entry). The screen then shows the two players at either end of a rope, with a chasm between them. Correct guesses will pull your opponent closer towards the chasm, while incorrect guesses pull you.



Left: *Simon* is based on the electronic game of the same name. If you liked the toy, you'll love the program. If, on the other hand, you found it annoying...



Right: *Space Maths* is another program where the routine drill of maths questions is tempered by an interesting screen display.

SIMON & SPACE MATHS

Available from the AMOS PD library as APD135 – £2.50.

Remember that horribly frustrating hand-held game from a few years ago where you had to reproduce a sequence of colours and sounds? Well it's back! This disk consists of two programs, one of which is *Simon* and is a straight copy of the electronic toy, while *Space Maths* offers good arithmetic practice against a galactic backdrop.

Simon displays four coloured areas, each of which, when highlighted, gives off a tone. The computer highlights a colour then asks you click that colour with the mouse. A correct response from you prompts the computer to reselect the first colour then add another. Again you must match it. After each correct answer the sequence is increased by one and gets more and more confusing. The game is over when you fail to follow the sequence – my record is about ten.

Space Maths asks for your age when starting a new game, in order to calculate the appropriate level (out of five, ranging from reception class to top-senior/adult), then provides questions relevant to that level. Thus, top level players are subjected to horrors such as "45x93=?", while younger children are given problems suitable for their age too. Unlike many similar programs which demand that you answer a set number of questions in a batch, *Space Maths* allows you to choose the size of the quiz. Once all of the questions have been correctly answered, a simple shoot-em-up screen appears as a reward (and when I say simple, note that I don't mean easy). A good, flexible and entertaining disk.

TOUCHSTONES

Available from the AMOS library as LPD18 – £3.50

Have you ever noticed how many apparently simple logic games turn out to be tremendously challenging, just when you thought you'd got the hang of them? *Touchstones* is rather like chess in that respect. The rules couldn't be easier but the logic required to play it well is horrendously difficult.

The game is played on a gridded board with a heap of tiles (playing pieces). Each tile has a coloured symbol which must be matched by either colour or shape to tiles already on the board. Each time a horizontal or vertical match is made, a point is scored (although you don't get an extra point for matching both colour and shape in a single direction).

To help you in your task, a handful of tiles are displayed in the order in which they will be playable, allowing a certain amount of forward planning. In the two-player version, careful note must be taken of who will play which tile, since blocking your opponent is the order of the day.

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files or with instructions accessible during use. Priced at a pound or two more than those offered as shareware or PD – typically £3-5 per disk – the extra money is passed back to the author by the PD library operating the distribution. In this way the author often receives as large a slice per disk sold as from full commercial distribution, but due to the low end price is likely to sell far more copies. Due to the author receiving a cut on these disks you are not allowed to copy and distribute them – instead you must buy from a licensed distributor. If you pass or receive copies you are stealing from the author. But who needs to pirate when disks are so cheap?

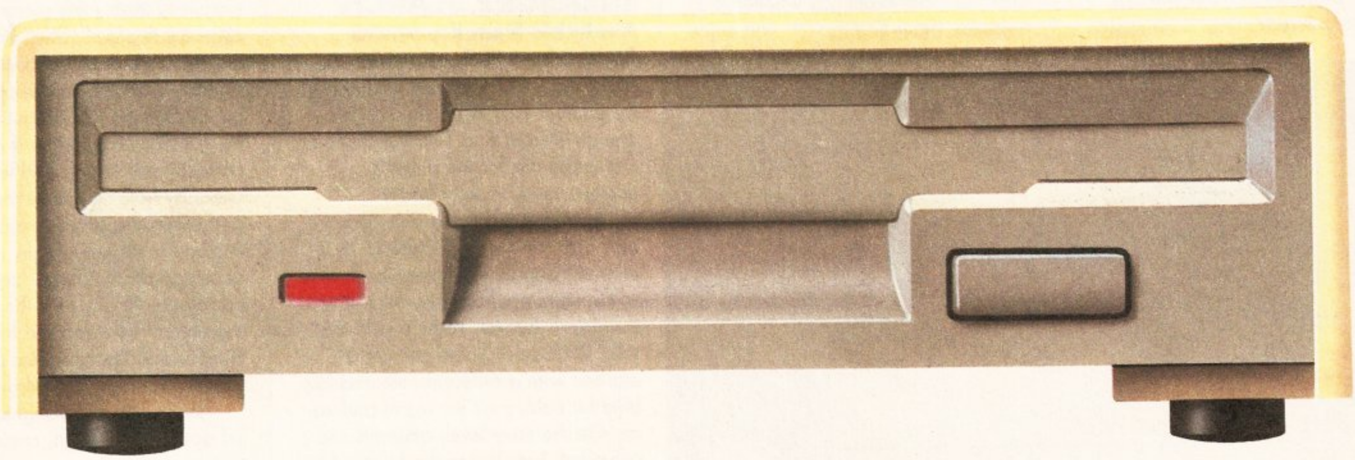
AMOS licenseware is distributed by a wide range of PD libraries, and all follow the same numbering and pricing system. All these disks are sold for around £3.50 and are not freely copyable. If you pass copies on to friends you are depriving the author of their royalty – don't do it or the heavy mob will be after you. Amiganuts, among others, also distributes a range of software licensed to it alone. Again, remember that copying these disks is piracy.

EDUCATIONAL CONTENT

Many programs offer a variety of educational features alongside the publicised one. This table shows which main aspects of the National Curriculum are covered in each of the programs mentioned this month. While not exhaustive, it should at least help to point you in the right direction.

	Maths	English	Science	Reflex	Logic	Facts	Revision
Learn & Play	Y			Y	Y		Y
Simon & Space	Y			Y	Y		Y
Touchstones					Y		
Shapes	Y				Y		
Quingo	Y	Y	Y	Y		Y	
Treasure	Y				Y		
Jigmania	Y				Y		

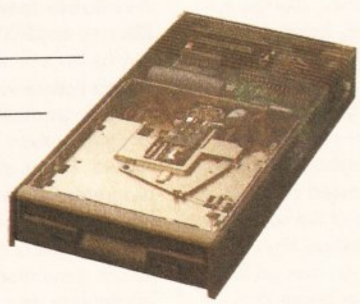
Where you can stick it.



Viruses, disk swapping, clicking drives, disks which won't back up. Is there no end to the whingeing of the Amiga user?

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continued from page 108

Even quite young children can play the game and enjoy it, and in many cases they prove to be equal to – if not the master of – the adults.

SHAPES

Available from Riverdene as GAM907AM (1Mb) – £2.50

Remember Pentominoes – those shapes which have to be fitted together to make other shapes? Well, here's a program to make the task much more entertaining, if no easier.

The main section of the screen consists of a large black shape, while below is a selection of smaller coloured shapes. Using the mouse you select the smaller shapes, rotate them if needed, then drop them into the black area. Once the black area is filled a code appears to allow access to the next (harder) level.

Sounds simple? Believe me, it's not. Only a limited number of each shape is available on specific levels, and there is a time limit too. So far I'm stuck on level three – I'm convinced that I have tried every possible permutation, but I still get left with at least one isolated black space which is unfillable... help!

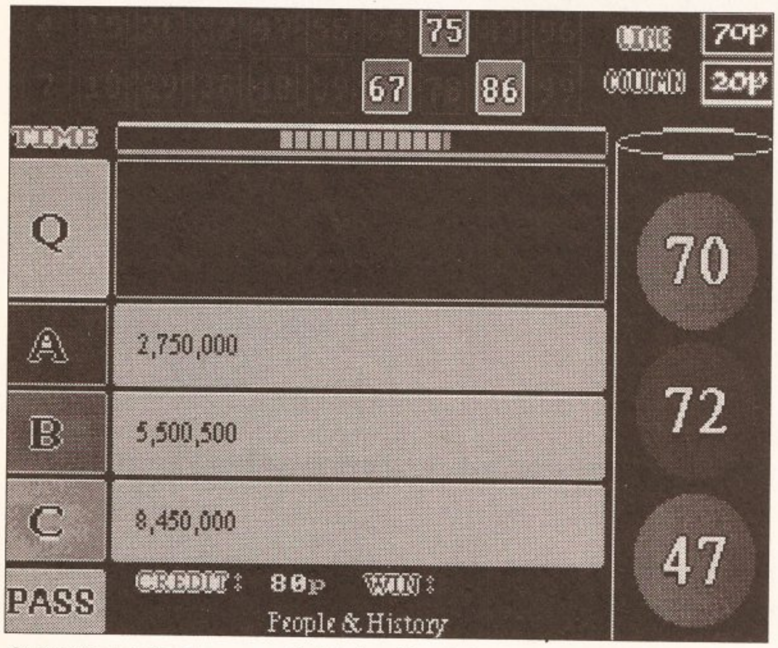
This type of activity is excellent for training and testing spacial co-ordination, which is probably why I'm so bad at it, but the kids take to it at once and seem to have the patience I lack.

Mike Archer, the programmer, demonstrates the spirit of PD and shareware perfectly. Instead of sending him a monetary donation, all he asks is that you send a disk from your own PD collection. However, he also points out that if response to this approach is poor any further games will be released under licence and hence will cost far more than the paltry 70p-worth of disk and postage he's asking for at the moment.

QUINGO

Available from the AMOS library as LPD21 (1Mb) – £3.50

One of the best ways of gaining general knowledge is by taking part in quizzes. The 'quiz night' is now a regular feature in most pubs and many have their own quiz machine too, where quiz contestants gather after the main event has whetted their appetite. Now *Quingo* lets you enjoy the excitement and frustration of the pub machine without spending all of your money.



***Quingo* is a quiz program which is hard but fair – highly recommended.**

As the name implies, *Quingo* is something of a hybrid, being a cross between quiz and bingo. Questions are worth one, two or three bingo balls, the more balls you choose the less time is given to answer. Correct answers allow the numbers on the current balls to be crossed off on a bingo card at the top of the screen to make horizontal or vertical lines. If you are really good you can go for a full house. Each line or house wins money (unfortunately only the imaginary variety) and the amount won after your (again imaginary) £1 stake is exhausted determines your position in the high score table.

Some of the bingo balls allow bonuses such as extra credits, multiple choice reduced from three to two or a useful option to select your own question category. The categories themselves range from history to pop, and with seven to choose from covering 3,000 questions there's plenty of variety and little repetition. After playing for a whole afternoon recently (yes, I was hooked) I didn't see one question repeated. The questions themselves are of quiz machine standard – academic rather than trivia – in other words, hard but fair, and combined with very polished presentation and good screen design make for an excellent program. Highly recommended.

TREASURE SEARCH

Available from the AMOS library as APD2 – £2.50

Show me a kid who isn't fascinated by pirates! *Treasure Search* offers any child from 5 to 105 years old the chance to dig for the pirate's hoard... and actually find it.

The screen display is a 10 x 10 grid and the children's task (1 or 2 players) is to type in the co-ordinates of the square where they think the treasure is buried. To help with the task, each co-ordinate chosen is marked with a different coloured tag: blue for cold, pink for warm and so on. On the easy level, attempts are unlimited, but choose the harder level and moves are limited to a few, making trial and error a virtually unusable option.

Each time the child types a position, a pair of feet walk there from the origin, and each unsuccessful attempt is greeted by a picture of a pirate, together with a sampled rendering of "There ain't no treasure 'ere, shipmate." Highly entertaining and excellent educational value.

JIGMANIA

Available fromthe AMOS library asLPD13 (1Mb) – £3.50

Len Tucker's near-monopoly of the Amiga licenseware educational scene is gradually becoming diluted as other authors get to grips with AMOS, but he still produces more programs than anyone else – and I haven't seen a poor one yet.

Jigmania is a versatile jigsaw puzzle generator which allows you to incorporate your own pictures for scrambling and reassembly in addition to those provided with the program. Either 99- or 35-piece puzzles can be selected, with three levels of difficulty for each. On level one, all the pieces are provided correctly orientated with guides on the screen to show where they can be placed. Level two sees the guides disappear, while level three rotates the pieces randomly too – wicked.

Operation of the program is simplicity itself – the piece in play appears in place of the mouse pointer and can be changed for another simply by pressing the right mouse button. The left button places the piece on the screen if it is correctly positioned and won't let you cheat by holding the button down and sweeping around randomly. Do this and a satanic giggle accompanies a "cheat" accusation on screen. At any time the play screen can be swapped for a miniature of the complete picture – vital in the disorientated pieces level.

Len's wife and daughter play a full part in the design, creation and testing of his programs and it shows. All the games are highly polished with that touch which comes from collaboration rather than isolation. *Jigmania* is the follow-up to one of his PD games, *Pick-Up-A-Puzzle*, and resulted from constructive criticism from many players. It's certainly well worth buying. AS

SHOPPING LIST

Riverdene PD library
30a School Road
Tilehurst
Reading
RG3 5AN
☎ 0734 452416

AMOS PD library
25 Park Road
Wigan
WN6 7AA
☎ 0942 495261

CHECKOUT

	Education value	Ease of use	Flexibility factor	Addiction	Overall
Learn & Play	15	15	3	15	48/100
Simon & Space	20	25	8	20	73/100
Touchstones	20	27	5	30	82/100
Shapes	25	25	5	30	82/100
Quingo	30	30	3	30	93/100
Treasure	15	20	5	20	60/100
Jigmania	20	30	9	25	84/100

AMIGA SHOPPER

Accelerator Cards Buyers' Guide

Your at-a-glance guide to accelerator boards for the Amiga. For full details and reviews of all these cards, get Issue 3 of Amiga Shopper. See page 62 for details of ordering back issues.

Device	**GVP 3001**	**Mega Midget Racer**	**B5000**	**Pro 030**	**030**	**020**	**ADSpeed**
Manufacturer	Great Valley Products	CSA	Solid State Leisure	HARMS	HARMS	HARMS	ICD
Details							
Processor	68030	68030	68030	68030	68030	68020	68000
Speed	50MHz	33MHz	25MHz	28MHz	25MHz	20MHz	16MHz
Compatibility	2000	500/2000	500/2000	2000	500	500	500/2000
Availability							
Price	£2,199	From £389	From £595	£1,099	From £150	From £150	£173
Distributor	Power Computing	Bytes 'n' Pieces	Solid State Leisure	Bytes 'n' Pieces	Bytes 'n' Pieces	Bytes 'n' Pieces	Power Computing
Telephone	0234 843388	0253 734218	0933 650677	0253 734218	0253 734218	0253 734218	0234 843388
AS Ratings							
Speed (25)	25	25	20	22	11	11	10
Construction (15)	15	14	15	10	8	8	15
Software (10)	7	10	6	4	8	8	10
Documentation (15)	11	15	5	8	9	9	10
Installation (20)	19	20	20	20	14	14	19
Compatibility (15)	14	10	12	10	10	10	15
Overall (100)	91	94	78	74	60	60	79

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Saxon Publisher V1.2....£249.95
Draw 4D....£149.95
Saxon Publisher/Draw 4D Package...£349.95

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ExpandaRAM

Graeme Kidd takes a look at Supra's expandable RAM system

There will come a time when you need more memory. In fact, the time is likely to come several times in your Amiga-owning life – today 2Mb might seem like a dream configuration, but within a few months you may well be aspiring to 4 or even 8Mb.

Two open-ended memory upgrade systems are currently available for the Amiga: the SupraRAM 550RX, which relies on DRAMs to provide the extra memory capacity, and the Cortex, which uses more expensive SIMMs to achieve the same end result.

With an *Amiga Shopper*-reader's eye for price, the SupraRAM system is likely to appeal. You should bear in mind your eventual aim – you can get up to 2Mb by using 256Kx4 ZIP chips, but to go to 4 or 8Mb, 1Mb x 4 ZIP chips are required. If there's any likelihood of your memory requirements exceeding 2Mb, start with 1Mb x 4 chips installed, or you could end up throwing away about £100-worth of surplus silicon.

There's little to say about the unit itself – except that it is gloriously functional. Nestling inside the heavy-gauge steel casing is the very minimum of circuitry (less to go wrong), and the unit clips neatly to the side of the A500, connecting to the expansion port on the left.

If you need to add other peripherals, a few minutes' work with a posidrive screwdriver reveals a through-connecter in the side of the SupraRAM casing. In the unlikely event that you find that too much power is being drained, any 5 volt power supply can pour extra electricity into Supra unit – if you are brave, wire it in yourself via two solder pads, if not have a word with the people you bought the memory upgrade from!

Installation is a matter of moments – the manual tells all, including what chips you need to buy if you want to add more memory yourself and how to fiddle around with the internal jumpers to make use of the extra silicon. A robust switch allows you to switch the extra RAM in and out of your system without physically disconnecting, and there's even a utility on disk that gives the chips a good workout before you start for real. All you could need. AS

SHOPPING LIST

Supra RAM board:

With 256K x 4 DRAMs installed
1Mb £129.95

With 1Mb x 4 DRAMs installed
2Mb £189.95

4Mb and 8Mb: prices vary with the altering cost of memory chips – phone for an up-to-date cost. As a guide, at present a 2Mb set of ZIP RAM chips costs approximately £80.

from Surface UK Ltd
5 Rockware Avenue, Greenford, Middlesex UB6 0AA. ☎ 081-566 6677

CHECKOUT
SUPRA RAM CARD

Documentation.........7/10
Not a work of publishing prowess, but gets all the information you need over in a straightforward way.

Durability...............18/20
Solid construction, simplistic internal design and low profile to the Amiga casing mean that this unit should really last.

Speed 20/20
Er, about every bit as fast as it needs to be.

Ease of Installation and Use 19/20
Self-check utility is provided, together with a troubleshooting section in the manual and there is even a UK phone number provided for technical support.

Features...................7/10
No frills, no bells, no whistles. Just raw memory capacity.

Value for money 19/20
Bear in mind whether you want more than 2Mb so that you get off to right memory chip configuration when you start, and you'd be hard pushed to get better value. About £80 cheaper than the Cortex system at 2Mb...

AMIGA SHOPPER 90/100

Neat, functional, powerful, sensible. A sound piece of kit.

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FOR SALE

Brother Laser printer HLES, 8 pages per minute with 8 spare cartridges as new £475 ☎ 0253 739002 or 0860 606000.

AT Bridge Board 3.5 inch 1.44Mb floppy DOS 4.01. Latest version £360. A2091 hard disk controller with 2mb RAM fitted £140. Art Department £30. Music-X £35. ☎: Keith Miles (Cambridge) 0223 213704.

Hard drive for Amiga A500 spirit HD506 40Meg drive ready to run £325 ono. Star LC2410 24-pin printer £175 or near offer. Ring Gary 0227 363295.

BBC-B 8271 DFS; Cumana Cs400 40/80T disk drive with PSU; Star Gemini 10-X printer; Joysticks; Moreley teletext adaptor; Manuals; Leads; Games; Disk box. £200. ☎ Medway 0634 669739 (evenings).

Amiga A500 Screen Gems pack still under warranty plus 0.5Mb expansion and 3.5-inch external disk drive sell fox £350 complete. Interested? Then ☎ Jonathon Hawkins on (0296) 622105 after 6pm.

Amiga games: Back To The Future II; Days Of Thunder; Batman the Movie. £10.00 each. ☎ Lee 0203 415308.

ATonce PC emulator for sale complete with MS-DOS 3.3 and latest software (V1.27) £150. Dennis Trovbridge. Gloucester 0452 611824.

Unwanted gift. Professional Draw version 2. Still sealed in original box £65 ono. ☎ 0305 770453 after 6pm.

P.Page £80.00. P.Draw £50.00. P.Stream £60. Pro Video plus PAL latest version £100. Minigen genlock, D.Paint, Populous, Sim City, plus more, offers or swap. ☎ 0947 820008 anytime.

Amiga 2000/PC, Amiga side two 3.5 D/drives, PC side one 3.5 one 5.25 D/drive 20Mb. H/disk, colour monitor books software QL with printer and software thrown in. £1,200 ono. ☎ 0703 226866

Amiga 500 computer, Commodore colour monitor plus collection of original games, joystick, books. All in good condition. £450 ono. Telephone Gary on 081-658 1898 after 7.00pm.

Amiga A500 512K RAM and clock, A590 20Mb HD, mouse, TV modulator, 3.5-inch Cumana external drive, Deluxe Paint II, Workbench and Kickstart £500 the lot. Phone 0592 759717 weekends.

Citizen 120D+ printer. 4 months old, boxed and guaranteed £85. Also Geniscan 4500 scanner complete with interface and Amiga software brand new, with receipt £70. Preston 0772 883061.

SAS/Lattice C. 10 development system £150. Phone for explanation! Devpac V.2 with 2 books £30. Maxiplan Plus spreadsheet V.1.89 £40. Phone Simon days 0734 308252.

Star LC-10 printer, leads for Amiga and spare ribbon, perfect condition, boxed, on-site warranty, rarely used. Must sell £125 or near offer. ☎ (0703) 692077 evenings.

Commodore 64 1541 disk drive, 100+ games etc. on disk and tape £100. 512K RAM + clock (Amiga) £20. Citizen 120D printer £50. Telephone 071-263 9558.

Lemmings, Corporation, Hostages, boxed as new will swap for AMOS (complete): Quartet, Superbase Personal 2, Fantavision. Offers – will swap for music progs etc. Write N. Gilmour, 116, Aldernood Crescent, Walkerville, Tyne and Wear NE6 4TT.

Amiga+ A501 upgrade OKI 390 24-pin printer, 2nd disk drive Naksha mouse, joysticks, loads of software, disk boxes £550 ono ☎ Ray 021 327 5931 after 6.30pm.

Amstrad CPC 6128 computer for sale. Colour monitor, Disk drive, a few games, green cruiser joystick, only £175 ono. ☎ Rob on 0732 450 816 evenings.

Pen Pal £50. Also Chase HQ, Starglider, BuggyBoy, Robocop, Xenon, Barbarian, Bombuzal, Wizball, International Soccer, £5 each. ☎ Rafeh on 081-423 2667.

Spectrum games for sale (all original) from 30p. Also Atari 2600 ucs cartridges from £3.50. For lists send an s.a.e. and 10p to Paul Demmis, 40 Cornhill Estate, Alnwick, Northumberland NE66 1RY.

FANZINES

'Where to camp in France'. The world's best Fanzine, issue four out now with free cover disc, are we mad? Better than the rest and only £1.50 send off today! P Templeman, 17 Cotherstone Drive, Acklam, Middlesbrough, Cleveland TS5 8JJ.

PERSONAL

Help wanted to set up user group. Preferably portables, but others welcome. Write to: Damien Cooper, 4 Emerald Close, Waterlooville, Hants. Please send a stamped, addressed envelope and state machine.

Amiga Grafix artist available, and would like to work with coders and musicians to create mega demos. Contact Reanimator 0532 493 942 now!

Amiga Professional Page v2.0 users wishing to swap ideas, clip art etc. Write to: Gordon Keenan, 21 Skirsa Place, Glasgow G23 Deskjet 500 users who are having problems... Write!!!

Amiga viruses for public domain documentaion/program. Send to: Wayne, "Rookery Nook", London Rd, Little Clacton, Clacton on Sea, Essex C016 9RN. All disks and postage will be returned.

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Sell your excess hardware and software with *Amiga Shopper* Reader Adverts. Just fill in the form and send it to us along with a cheque (made payable to Future Publishing) or postal order for £5. But **BE WARNED**. This magazine is not a forum for selling pirate software or other illegal goods. Software must include all issue disks, manuals and a signed statement that all other copies have been destroyed. Please advise us if you are offered pirate or copied software by advertisers. All ads are accepted in good faith. The editor reserves the right to refuse or amend ads. We accept no responsibility for typographical errors or losses allegedly arising from the use of this service.

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Tick one box to show required section heading

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Use one space for each word to a maximum of 30 words. Write in block capitals.

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Amiga Artists Club 34 Roundhay Mount, Leeds LS8 4DW. A club for Amiga artists, musicians and coders for mutual assistance and programming demos. No pirates, genuine Amiga artists only. Membership is free, contact KAM on ☎ 0532 493942, 5pm-8pm.

Amiga Beginners' Club 110 Whitehill Park, Limavidy, Co. Londonderry, BT49 0QG. A club to help newcomers to the Amiga. There is a bi-monthly club disk, and a small PD library. Membership costs £2 for a single disk, or £20 for every issue.

Amiga Users Klub, Windsor House, 19 Castle Street, Bodmin, Cornwall PL31 2DX.
Meets every Friday from 6.30-9pm, to expand members' knowledge of Amiga computing and help with problems. Contact Jack Talling.

Amiga Witham Users Group, 85 Highfields Rd, Witham, Essex CM8 1LW.
Distributes tips and Basic programs. Keith Anderson ☎ 0376 518271.

Basic Programmers Group, 68 Queen Elizabeth Drive, Normanton, West Yorkshire WF6 1JF.
A group set up to encourage the use of Basic, exchange ideas and assist those beginning with the language. A free newsletter can be got from Mark Blackall, ☎ 0924 892106.

Chester-le-Street 16 Bit Computer Club, Conference Room 2, The Civic Centre, Newcastle Road, Chester-le-Street.
The club meets every Monday from 7.30-9.30pm to see each other's software collections, exchange advice and tips. Contact Bob ☎ 091-265 3671.

Club Amiga, 5 Bowes Lea, Shiney Row, Houghton Le Spring, Tyne and Wear DH4 4PP.
Membership costs £5 a year for a newsletter, PD software and a 24-hour telephone helpline service. For more info send an SAE to Chris Longley.

Computer Club, 16 Laton Road, Hastings, East Sussex ☎ 0424 421480. This is a 16-bit club dedicated to being computer enthusiasts without being pirates. Membership costs £15 per year, and the club has arranged discounts with several local firms.

Independent Commodore Products Users Group, Biggin Hill Library, Church Road, Biggin Hill, Kent.
Meets most Thursdays from 7.45-9.45pm. There are lecture nights and open nights where members can get help. Contact John Bickerstaff after 8.30pm. ☎ 081 6515436.

The Pennine Amiga Club, 193B Oakworth Road, Keighly, West Yorkshire BD21 1RE.
Offers free membership, free advice, and circulates a newsletter. Contact Simon Booth ☎ 0535 600437.

Slim Agnus, 115 Brocks Drive, North Cheam, Sutton, Surrey SM3 9UW.
Meets on the last Thursday of the month. PD library, bulletin board, advice from Amiga experts. Contact Philip Worrel.

Software Exchange Service, 13 Bournville Lane, Stirchley, Birmingham, West Midlands B30 2JY.
Offers a forum for exchanging old, unwanted games at a a small price. Contact Michael Pun on ☎ 021-459 7576.

RUN A GROUP?

For a free listing on this page, send brief details of your user group, including a contact address, to User Group List, *Amiga Shopper*, 30 Monmouth Street, Bath BA1 2BW.

We reserve the right not to include entries if we have reason to believe that software piracy is a part of the function of the group.

BUYING ADVICE FOR AMIGA SHOPPERS

Whether buying over the phone from adverts in Amiga Shopper or at a local computer store, here's our advice on how to avoid problems

BUYING IN PERSON

● Where possible, always test any software and hardware in the shop, before taking it home, to make sure it works properly.

● Make sure you have all the necessary leads, manuals or other accessories you need.

● Don't forget to keep your purchase receipt.

BUYING BY PHONE

● Be as clear as possible when stating what you want to buy. Make sure you confirm all the technical details of what you are buying. Some things to bear in mind are version numbers, memory requirements, other required hardware or software and compatibility with your particular model of Amiga (that is, make sure you know which version of Kickstart you have).

● Check the price to make sure it's the same as the one advertised.

● Check that what you're ordering is actually in stock.

● Check when and how the article will be delivered and that any extra charges are as stated on the advert.

● Make a note of the date and time when you are making the order.

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We want to ensure that buying mail order through *Amiga Shopper* is a straightforward, hassle-free experience.

Taking the advice offered on this page will help make it so. But if, despite this, you run into problems – for example, failure to deliver goods within 28 days, without reasonable explanation – we will do our best to help sort things out.

Simply contact our Customer Liaison Officer,

Helen Self at **Future Publishing Ltd, 30**

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As with buying by phone, you should clearly state exactly what it is you are buying, at what price (refer to the magazine, page and issue number where it's advertised) and give any relevant information about your system set-up where necessary. You should also make sure you keep copies of all correspondence both to and from the company concerned.

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Always check, when buying hardware, the conditions of the guarantee, servicing and replacement policy, so that you know what level of support to expect. Always fill in and return warranty cards as soon as possible and make sure that you are aware of all the conditions contained in the guarantee.

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288 The AMOS Demo
399 NewTek Demo 3 (2) *
483 Elvira Demo
646 Predators Megademo (2)
744 Red Sector Cebit Demo
747 Popeye Meets Beachboys
773 Shark Animation *
825 Budbrain Megademo (X)(2)
853 Dragons Lair Demo *
854 Bread/Home & Away Demo
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1105 Crionics Neverwhere Demo
1110 Fractal Flight
1188 Fillet The Fish
1200 Raiders of Lost Ark Anim *
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1238 Evil Dead Demo (X) *
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1256 Killing Game Show Demo
1271 Legend of Billy The Kid *
1280 Horizon: Sleeping Bag
1287 Wrath of the Demon Demo

MUSIC DISKS

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724 Technotronic Remix
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914 Special Brothers Music 2
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1788 Magnetic Beats 3

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BEGINNERS START HERE

Software for free? How's that then?

This may sound like a call to piracy, but public domain software is free to anyone. Yes even you sir, you at the back with the Jolly Roger. There isn't any catch, unless you count the fact that there is so much PD software on offer that it's hard to choose what you're going to have. And that's where I come in.

But what does PD mean?

The public domain concept is borrowed from the early days of mainframe systems, where enthusiasts (called 'hackers' then, before the word had less pleasant connotations) produced programs and distributed them to their friends and fellow hackish types, asking for no payment but the glow of being recognised as a truly hackish coder. The copyright was waived by the author, and so the program was said to be in the public domain – that is to say, any member of the public had a right to copy and use the program however they wished, provided that the author's credit and any relevant documentation was distributed with the program.

So how can I get hold of all this wonderful free PD?

Either buy it from a PD library (see the last page of this article for a list) or, if you've got a modem, download it from a bulletin board. These are computers with modems, which anyone can use a phone and modem to log on to, download a lot of demos and utilities, leave a few messages and programs of their own and log off. You'll find many boards with Amiga files – check out our Comms pages for phone numbers.

Welcome once more to the PD zone. More public domain wonderment this month, and more and better PD houses springing up every day, like mushrooms in a coal hole.

One house which recently got in touch with me is New Wave – you may have seen their crazy adverts in the mags recently. They are a new, 'kick ass' bunch of guys who are going out of their way to make an impression with their tip-top PD and demos, some of which I'll be looking at this month. They also have their own demo team too, but more about this next time.

There's a lot of very high quality PD around now, and there is more for the Amiga than just about any other computer known to man. So let's get on and take a look at the pick of the crop...



"Public domain software can be excellent – or execrable. By reading my column every month you'll be able to select the good and avoid the bad and the downright ugly."

Phil South

DEMOS

The demo scene is really hotting up now: to my mind it's never been more varied and skilful, with piles of very high quality demos coming out every day. The demo teams hardly ever sleep, it seems, and when they do they dream up new and even more brain boggling ways to shift text and vectors around the screen. But when Eric Schwartz dreams, he dreams of sexy Lemmings...

Anti-Lemmin'

(NBS disk P044)

Eric Schwartz is fast becoming the best Amiga animator around, with his Gold Disk *Moviesetter*-based animated cartoons being some of the finest examples of Amiga 'moving art'. Eric made his mark quite early on, when *Moviesetter* was just a fledgling program, with some fairly crude (not to mention quite rude) animations featuring some famous cartoon characters. He fast moved on to his own characters, and his animation has been improving in leaps and bounds since that bygone age. The most popular cartoons he's made are the *Aerotoons*, a series of short demos based around cartoon aeroplanes, not unlike the style of the *Thomas The Tank Engine*, where all the vehicles have faces. The quality of the animation in Eric's work is usually superb, and so a new cartoon by him is a major event.

So on to his latest offering, which is called *Anti-Lemmin'*, and is a two-disk addition to the *AeroToons* series. In this episode, the lemmings from the Psygnosis game of the same name are strafed by an *Aerotoons* aeroplane. The result is a funny and clever comeback, with a payoff which I won't spoil for you. Suffice it to say you will never view the *Lemmings* game in quite the same light after seeing this cartoon. As usual there is a sexy female character, as in all Schwartz's cartoons, and this time predictably enough it's a lady lemming. I'm sure she'll be as popular an Amiga pin-up as the sexy squirrel Eric invented a few months back. This, my friends, is PD at its best.

Value for money 10/10



Voluptuous lemmings? This man is sick, sick, sick...

Asylum: The Search For Anarchy

Amiganuts disk 1097

As good a piece of demo coding as you'll find anywhere in any PD collection, the *Asylum* demo is the latest from the Sanity team. The coding in this instance is by Chaos and Panther, with great graphics supplied by the team of Cthulu and Cruiser. The music tracking and scoring for the piece is by the inimitable Jester.

The high point of this very slick and highly polished demo is an animation with an incredible 144 vector bobs on-screen at once. A bob, as you may already know, is a blitter object, and vector bobs are similar except that they are linked together on screen as vector objects, 3D shapes, made from these self same bobs. Here, the bobs are a little shaded vector graphic of a cube, and they all move smoothly into position to make up a variety of fab 3D shapes. When the shape is formed it holds for a few seconds, then changes as the bobs slide around to their new positions. All the time the music is going and the object is spinning whilst changing shape. All very clever stuff, and you'll be doubly impressed when you

continued on page 121

PAYING FOR IT

PD might be free but disks, postage and wages aren't, so be prepared to pay between 99p and about £2.50 per disk from a PD software house. The price you pay is up to you, although some people get a bit cross paying £2.50 when other houses do disks for 99p. I suppose it depends on how the disks are duplicated. If the company has an office and a duping machine, then it costs money to run. But if it's built the PD house into an existing business, then obviously it has no overheads to speak of. Some 99p PD houses are good, others are terrible. The only way to find out for sure is to spend 99p. Or read *Amiga Shopper* every month, for the same price, and find out from us!

continued from page 119

actually see it in motion. There are some other demos on the disk, like Mr Potato Head doing a nice little stage act, and although these other demos are very charming, they aren't nearly as exciting to watch as the main event. Keep a close eye on Sanity, as I think the team will be churning out some very exciting demos over the next few months.

Value for money 9/10

Sleeping Bag Demo

Sector 16 disk 592

This is the latest from the Horizon team, a bunch of guys from Gothenburg, which if memory serves is in Sweden – as are most of the really hot teams of the moment. Music for this opus is by Bryce, assisted on this occasion by Blaiser of the famed Silents team, coding is by Shuriken, and the glistening graphics are by Horizon regular Striper.

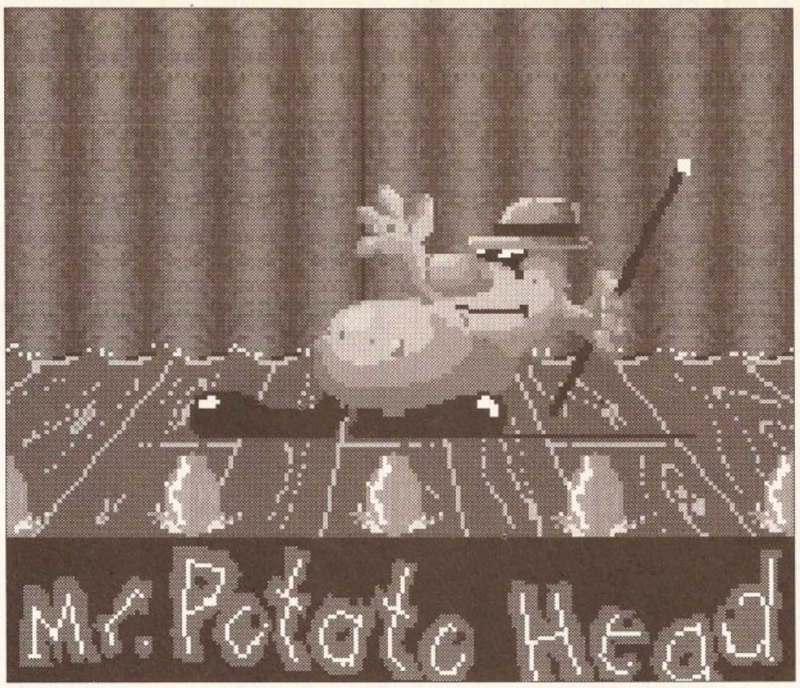
This demo was originally released last Christmas, but oddly enough we haven't seen it till now. This happens sometimes, depending on which teams the PD houses are in touch with, and whether their contact has just been to a coding conference. Although *Sleeping Bag* is fairly routine in places, there are some very interesting moments, like the transparent cube with a star shaped vector object embedded inside it, or the rippling chessboard effect. In fact, all the effects are neat twists on ones we already know and love. I liked the transparency effects on this disk, where surfaces can be seen through other surfaces. In fact, I'd say that there's real scope for a game like this: perhaps a maze with transparent walls? If Horizon could come up with a good gameplay, this idea might be worth exploring. In any case, an entertaining demo, even if it is a little bland in places.

Value for money 6/10

No Limits Back Pack 2

New Wave

The No Limits team – actually Hunter, one of the team members – takes you on a journey through the last few months of intros and demos. Included on the disk are *Unlimited Bobs* from the tactfully named Endless Piracy, *New Intro* from Eon, *Overdose* from Delight, *Small Intro* from Kefrens, *CBit 90* from RSI, and the *Back Pack Intro* by No Limits. The mention of the Endless Piracy team reminds me that both the Anarchy and New Wave teams are starting a sort of 'No Cracking, No Spreading, Just Coding' policy to try to wean excellent coding teams off of the practise of pirating disks, and channel their energies into coding great demos. (Note: Intros were originally an intro to a commercial program which has had its copy protection cracked by the team in question. Almost all teams started this way, and although it's deplorable it's a fact of life.) I look forward to the time this movement takes a hold in the demo industry as a whole.



I'm starting to think that demo programmers are just a little bit strange...

Anyway, back to the demos. The best demo on this disk, and indeed one of the best of the month, is the *Overdose* demo by the Delight group from Paris. Delight is also known as coder DCA, artist Darry Booper and musician Audiomaster, and together they have made one of the most subtle and soothing demos I've seen in a long time. The thing starts off with a very skilfully sampled and sequenced tune, a kind of *Art Of Noise*-style piano and synth affair. This is the one tune I've heard recently which sounds like it could have been recorded in a studio rather than on a *Soundtracker* in an Amiga! After a display of vertical copper bars, the demo really starts to kick in the good stuff, with one of the most artistic displays of plasma I've seen yet, in full overscan! The total effect of the demo is very relaxing, and in fact these days I put it on in the morning to start the day gently. The very first New Age demo!

Value for money 9/10

Exploding Head

New Wave

A small collection of four demos, two of which are digitised sequences from splatter movies. *Exploding Head* is my favourite, although it did give me a bit of a headache after a few minutes. After watching these demos for about 10 minutes, and knowing how much time it takes to make something like this, I have to ask the question... why did they bother?

Value for money 4/10

Master Of The Town

Amiganuts disk 1090

A simple game-style demo, without much of a game in there really. And all the text is all in German. Good for students of that language I suppose, but leaves me a bit cold. The aim is to break as many lampost tops, trucks and windows as possible. Although this isn't the most boring game I've ever seen, it must be in the top ten. Tedious.

Value for money 4/10

Games and Utils

Sector 16 disk 615

What's this disk doing in demos? Well, there's a game, a utility, and two demos on this disk, so the demos win. The util is *TetraCopy*, and very ho hum it is too. The game is *BlackJack*, and this is a very slick game, worthy of being paid for and very addictive. But in the end it's the demos that are what make this disk really worth having: these are the *Skate Animation* and *Substance*, written by Quartex.

OK, so the *Skate Animation* looks as though it was done using something really unfriendly like *Videoscape 3D. Videoscape* always seems to produce objects that look as though they are made of cardboard sheets loosely stuck together with Pritt. It's an OK animation, and more power to the guy that did it, as it's a very complex movement and probably took a long time to do. But what really bumps up the VFM of this disk is the demo by Quartex.

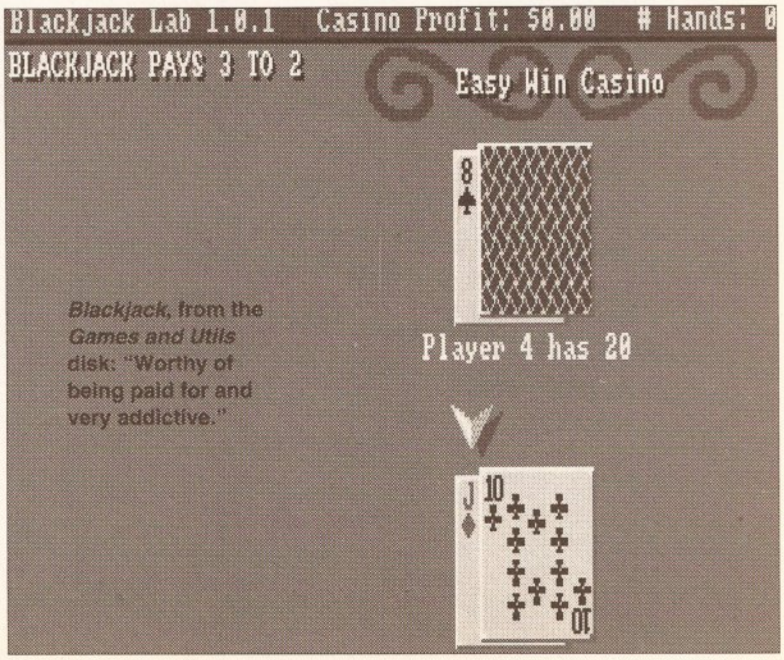
Quartex is still one of the hottest coding teams around, so it's a pity that it is so shameless about its disk cracking activities. Piracy is theft, and it's about time tip-top coders like the Quartex team turned their considerable skills to demos only. Sermon over, the *Substance* demo is a startling, fast and furious demo with lots of ideas and sparkling programming skills. The vector objects are intelligent and interesting, and some of the most bizarre shapes are rendered with apparent ease. I shudder to think what these guys could come up with if they turned their skills to a game. In a word, a stunning piece of code. *(That's five words and you're fired, nitwit – ed)*

Value for money 9/10

UTILITIES

Not many utils this month, but still a very richly textured selection from the regular PD houses. There are a lot of emulators still to be discovered, I'm sure, and I look forward with interest for the Oric, Enterprise, NewBrain,

continued on page 123



Blackjack, from the *Games and Utils* disk: "Worthy of being paid for and very addictive."

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and Exidy Sorcerer emulators – along with any other emulators of obscure and obsolete computers.

Copper Master

Amiganuts disk 1083

Not unlike the *Rainbow Warrior* program by Martyn Brown, except that this isn't primarily for generating copper bars using AMOS code. (*Rainbow Warrior* also does assembler, by the by.) This one lets you create the screen using a screen designer program, then outputs the screen as a file for you to include in your own programs. All you do is include the file into your *K*, *Seka* or other assembler program and call it using the IncBIN or RI command. Good util, allowing easy and intuitive control of the colours.

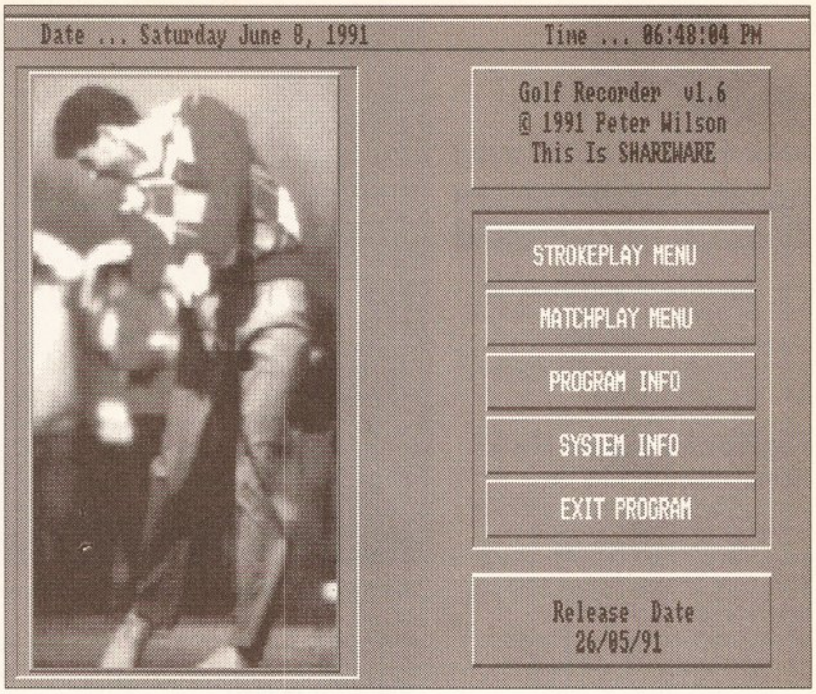
Value for money 6/10

Golf Recorder

Amiganuts disk 1093

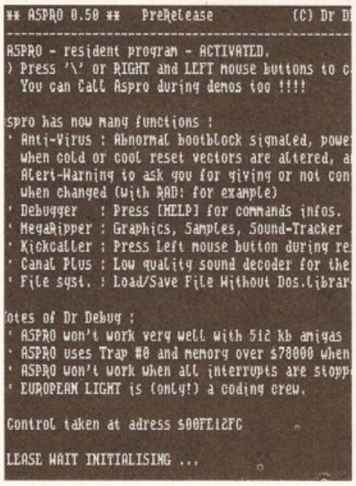
If you're a keen golfer (and golfers are always 'keen', for some reason) then this is the piece of software you've been waiting for. It allows you to keep a database of your performance and keep track of both stroke and match play. It's a shareware program, written by Pete Wilson. As an added bit of interest, there are very carefully digitised pictures of all your favourite golf stars on each screen. A very professional job, and worth the shareware fee just to pay the poor bloke back for his hard work if nothing else.

Value for money 7/10



Right: *Golf Recorder* not only allows you to keep your golfing records, it has piccies too.

Below: You can use *Aspro* to grab samples from other Amiga programs.



Rippers Disk

17 Bit 1055

Rippers are utilities which look at disks or memory and check for a '*Soundtrackered*' tune and let you save the module to disk. This is good for ripping tunes for your own demos. There are some tunes which are protected, encrypted you might say, against rippers, but this is easily got around if you have a program like *Aspro* which can grab samples from memory. The scores can be saved off with the ripper of your choice, then you can search through memory for the samples, and just load them into the score. Clever stuff, eh? A very good selection of the finest rippers money can buy... all of them, in fact.

Value for money 7/10

School Timetable

Amiganuts disk 1100

A limited interest school timetable program, and this is a pre-release copy so perhaps one shouldn't judge it too harshly. Obviously it prints out a school timetable based on input that it asks for, like period and teachers. I didn't like the output, but I suppose that this may be fixed in a later edition.

Value for money 5/10

Spectrum Emulator

New Wave disk Util5

Another version of the *KGB Spectrum Emulator*, a fully functioning 48K Spectrum emulation which works at about half to 3/4 speed. This version features some example files for you to experiment with. The neat thing about this is that you can operate in black and white (faster) or full original eight-colour mode. All the Spectrum Basic commands are here, so you can tap in any Spectrum listings you may have around, and you can load from tape using a sound sampler plugged into your parallel port. The program suffers from the usual twin evils of emulators everywhere, slowness and variable usability, but still a great blast from the past. As an ex-technical editor of a Spectrum magazine I had to pause once in a while to wipe a little tear of nostalgia from the old eye. Sigh. Those were the days. It was pretty awful, wasn't it?

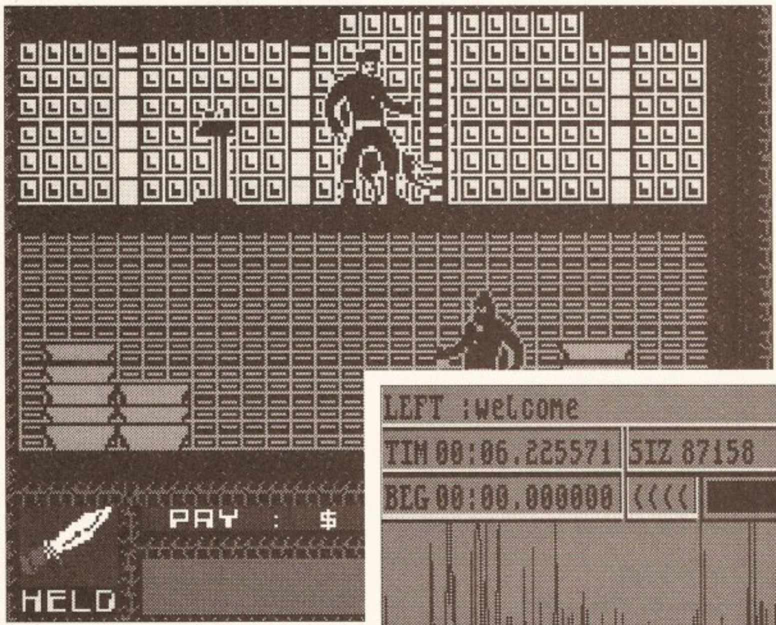
Value for money 9/10

SoundEd

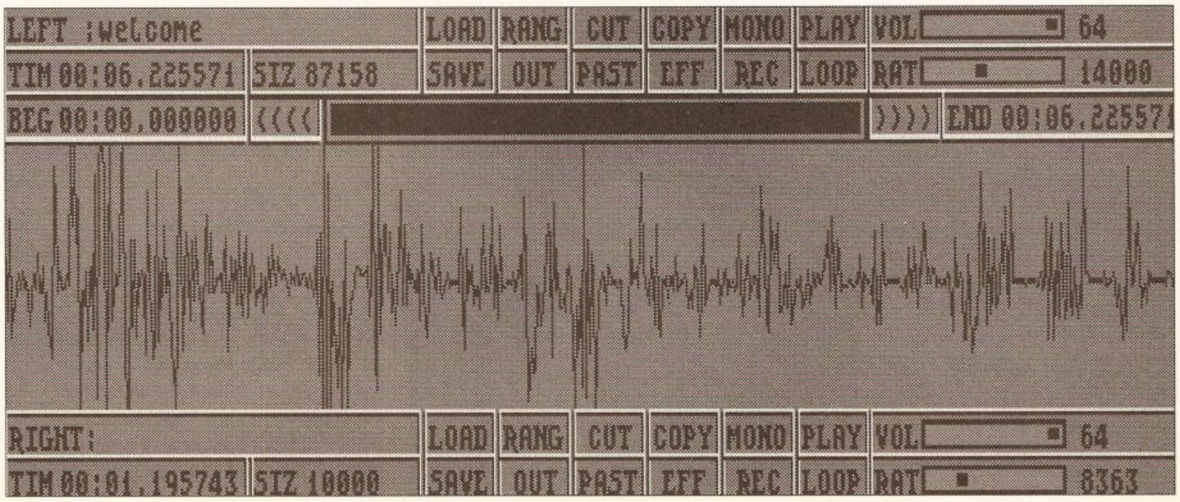
Softville disk FF486

A great demo of a sound editor package from the Fred Fish collection. You can load and save sounds in the 8SVX sound sample format, and edit them using the mouse. You can also sample with the program provided you have the SoundEd or Perfect Sound samplers. The program comes with a sample file for you to examine/edit, and the

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Above: Now you can play all your favourite Spectrum games with the *KGB Spectrum Emulator* – if you really want to, anyway.



Right: *SoundEd*, on Softville disk FF486, is a fully-functional demo version of the commercial program – "Good value for money."

continued from page 123

controls are easy pushbutton jobs, so it's hard to go wrong really. Good VFM, and very useful if you're a music or sample head.

Value for money 7/10

MUSIC

The music in the demos I get at the moment is so very good that it's hard to credit the music-only demos with much. But here are two that stood out from this month's batch.

Bignonia Music Disk

Amiganuts disk 701

Ahem. OK, so some of the language is questionable, but a very clever music demo nonetheless. The sound meters are the tapping foot, blinking eyes and flipping fingers of a *Ghostbusters II* ghost logo, and that must get the prize for the most original idea, if not the most effective. The music is really OK though, and you get 13 tunes by the Bignonia team of Dr FX and The Fox.

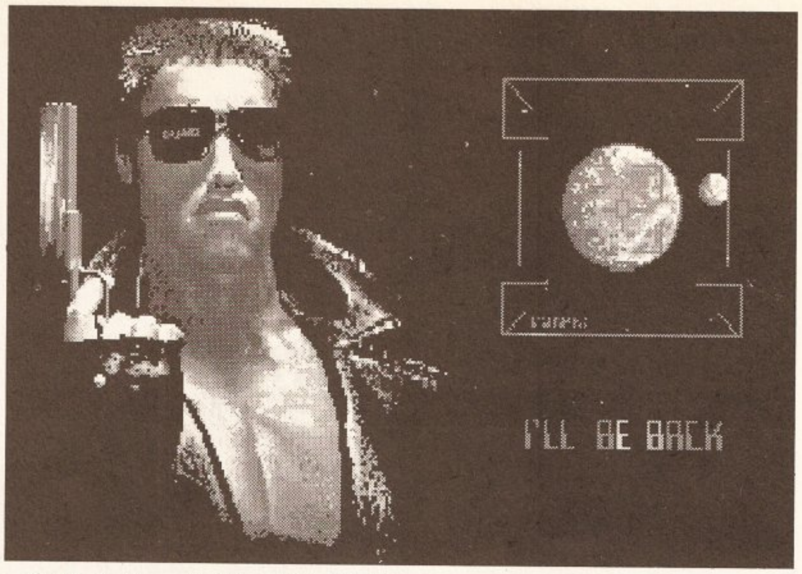
Value for money 6/10

Art Of MED

Amiganuts disk 1084

A selection of tunes made with the *MED* music program. Includes the *MEDPlayer* program to drive the tunes, although the author could have used the *Module Processor* program. I suppose it's better to store the tunes as modules rather than executables, since if you compile them nobody can load the tunes and alter them and steal the samples, can they! A good varied selection of ten *MED* tunes here, with my particular favourites being *Real* and *Jimmy*. The other program on the disk is the *Sizzlers* lightshow program, which draws coloured shapes on the screen and allows you to change the style of the shapes with the function keys in time to the music. A sound-to-light program is something I've always wanted. Surely there's some way of linking a sound sampler to a few graphic effects to produce syncopated shapes on the screen. The other alternative is Jeff Minter's *Trip-O-Tron*, but that doesn't fill the whole screen, more's the pity. Great tunes, good visuals. All in all, a lot of creative fun.

Value for money 9/10



Big Arnie, from the Chris Hill disk. Remember, it's nothing personal...

GRAPHICS

Graphics disks are a bit of PD action that everyone can have a piece of. Simply slip a few of the pictures you've done in *DPaint*, or even some you've digitised with *DigiView* or something, strap on a little tune you've done in *Soundtracker* (or steal someone else's, which is what most people do!) and Robert is very much your father's fraternal relative. Take a look at these graphics demos, for example...

Images From Aquarius

Amiganuts disk 1087

Aquarius is a graphics artist of some considerable skill, and a lot of his graphics are good enough to go into games. In fact, he has supplied a lot of sprite graphics ready to go. (You could even use the sprite grabber program in AMOS to use them in your own games, or at least load them up and learn how they were drawn.) A top notch showreel, and it wouldn't surprise me overmuch if this bloke was snapped up by a software house or demo crew for doing game or demo graphics. Nice one.

Value for money 9/10

This is just one of the pictures on the *Images from Aquarius* disk.



Mandelmountains

Softville disk SOF751

A good basic collection of fractal programs here from Softville's own collection. First is the title program, the exquisite mountain style renderings of Mandelbrot and Julia sets. But also included on the disk is the *Planet* program, a way of mapping IFF files on to spheres, *MandelVroom*, one of the fastest and best fractal programs around, and *Mandelshow*, and oldie but goody. After you have this disk the only other programs you need *FracGen* and *TurboMandel* and you've pretty much got the best of the bunch.

Mandelmountains is version 2.0, and although it's not a new program, very few programs are this different to the mainstream fractal programs. I've seen *Mandelmountain* pictures on record covers, in books, and in magazines, and it is a very popular way to render and view fractals. The trick is that instead of looking down on the Mandelbrot picture, you see it from the side as if the different colours were the various levels of a raised plane. The mountains are smoothed off, and light source shaded to full effect, and the whole thing is rendered in hi-res for your viewing pleasure. The effect is very easy on the eye, and although even with an accelerator the effect takes a long time to render, the end result is usually worth it. A classic.

Value for money 9/10

Chris Hill

Amiganuts disk 1092

Chris is a very innovative artist, although I'd say his stuff is more 'painterly' than game orientated. But his style is very attractive. I do have a suspicion that a few of these works were digitised before the painting work commenced – they just have that look. But I could be wrong, he could just be a phenomenal artist! (Sorry about that, Chris.) The style of some of the pieces is very unusual, looking as if he's used hi-res airbrush work, giving a sort of pointilistic look to some of the more fantasy oriented screens. A very skillful demo of his abilities, but not much to be learned from it, as even in magnify mode you can't see how it was done.

Value for money 7/10

Klerk Anims

New Wave disk AN618

Very nice ray traced animations by Dr Gandalf, using the Klerk character. This sort of thing is hard enough to do without picking the hardest 3D program, *Sculpt Animate 4D*, to do it in. These animations probably represent several days, if not weeks of rendering time, let alone the hours spent designing the objects and their transformations. Gandalf is a master of this format, and nobody can touch his deft skill with a theoretical ray of light, with the exception perhaps of the amazing Tobias Richter.

Value for money...5/10



An image from the *Klerk Anims* disk, by Dr Gandalf.

DISK MAGS

Disk magazines are a good way to stay current with the ever changing trends of the PD world. There are many on the market, and here is this month's crop of text and graphic extravaganzas.

Scanner 2

Scanner is a disk magazine produced by Telescan Computer Services, and the disk is licenseware, meaning you can buy it from Telescan but not spread it. *Scanner 2* is living up to the promise of the first issue, with a lot of very interesting stuff like the games *China Challenge 2, Missile Command, Squares Game* and *Air Ace 2*, and utils like *Chronos, Textplus 3, Spectrum Emulator, Utility Boot* and *Master Virus Killer 2.1*. As well as all this there are three stonking good demos,

continued on page 127

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PDA82 Madonna (18+)
PDA53 Final Ecstacy (18+)
PDA321 Budbrain Megademo (2 Disks)
PDA394 Red Sector Megademo (2 Disks)
PDA395 Garfield Demo
PDA318 Tron The Light Cycles (1 Meg) 2 Disks
PDA320 Budbrain Megademo 2. Well 'ard.
PDA315 Iraq Demo
PDA313 Good Morning Vietnam
PDA396 Anarchy System Violator
PDA75 Party Demo
PDA85 Stars Wars 2
PDA59 Sam Fox (18+)
PDA73 West Coast Cracker No 4
PDA108 Hifi Demo
PDA77 Graphics Demo (18+)
PDA68 Knight Animation
PDA35 Bodeans Bordello # (18+) No 4
PDA39 Bodeans Bordello #1 (18+)
PDA33 Bodeans Bordello #9
PDA517 Advanced Ham Invasion

MUSIC

PDM53 Amazing Tunes 2 (3 Disks) 1Meg
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PDM317 D-Mob 2
PDM316 D-Mob 4. 2 Disks
PDM390 Amiga Chart Mix 5
PDM120 D-Mob 3
PDM387 Derek & Clive (2 Disks)
PDM342 Digital Concert 2
PDM343 Digital Concert 3
PDM344 Digital Concert 4
PDM345 Digital Concert 5
PDM346 Digital Concert 6
PDM411 Ben Elton (XXX)
PDM68 What Time Is Love
PDM48 Technotronic Megamix
PDM511 The Simpsons. Do The Bartman (3 Disks)
PDM515 Shadow Of The Beast Music
PDM666 Jarre Revolutions
PDM756 Dirty Dancing
PDM842 Twin Peaks
PDM100 Miami Vice Theme. 4 Disks
PDM102 Miami Vice Crockets Theme
PDM114 Pet Shop Boys Remix #1
PDM118 Pet Shop Remix #2
PDM84 Black Box. 2 Disks
PDM110 Ride On Time/Bat Dance
PDM99 Noiseplayer V2.40

UTILITIES

PDU430 Soundtracker Collection (3 Disks)
PDU414 Uedit Word Processor
PDU416 Ultimate Copier & Virus Killer Disk
PDU418 Clip Art, Animals, Cartoon, Misc, People and Zodiac
PDU420 C-Light (1 Meg)
PDU422 North C 1.3 (2 Disks)
PDU425 Rippers, 45 music on 1 value disk
PDU424 Pagesetter Clip Art on all topics
PDU398 Amos Demo Disk
PDU371 Dope into Maker. Make own demos
PDU373 Ultimate icon disk. Icon & Editors
PDU391 Pascal PCQ1.1
PDU505 S.I.D. Cli Utility
PDU501 Ghost Writer & Rainbow Writer (Demo Maker)

GAMES

PDG11 Star Trek 3 (2 Disks)
PDG13 Board Games, Monopoly etc...
PDG14 Wheel Of Fortune. Good Game
PDG17 Tennis (1 Meg)
PDG19 Psuedo Cop Game
PDG21 Paranoid (Breakout Clone)

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78. The Holy Grail, a very good adventure
363. The Golden Fleece a text adventure (*)
418. Frantic Freddie the PD game, good fun
441. All new Psuedo Cop game, a Shoot em up
458. Castle of Doom, adventure with graphics
477. Return to earth, space combat/adventure
460., Flaschbier, a boulderdash P.D game
551. Cluedo and Monopoly, 2 great games
552. Eat Mine, has 80 screens to play at
553. Retaliator and Pacman, 2 great games
555. Drip, a painter type of game, great fun
558. Murder, an adventure playable preview
559. Back to the Future, playable preview
562. Spaceblitz, 4 good games to play
644. Horror Zombies, a playable game preview
665. Killing Game Show, playable preview
668. Cybercon III, playable game demo
672. James Pond and Paradroid playable demos
699. Yelp, a Painter type game, multi-levels
900. Blizzard, fast scrolling shoot 'em up
1014. Chinese checkers, similar to solitaire

SLIDESHOWS

781. Wendy and Lisa, pictures of the pop duo
779. Twin Peaks, pictures from the TV show
758. Yabba Dabba Doo, great cartoon pictures
667. Future Visions, more fantasy pictures
480. Saucy postcards, naughty but nice
474. Madonna Slideshow, lots of pictures
472. Viz slideshow as seen in Amiga Format
112. Space Bubbles, terrific fantasy pics
739. Slideshow Spectacular, superb hi-res.
904. Countach fantasy slideshow 1
905. Countach fantasy slideshow 2
991. Belinda Carlisle slideshow, great pics

UTILITIES

992. MED V3.10, supercedes MED V3.0 (*)
1026. MED V3.11 we bring it to you first (*)
813. Startrekker V1.2 Soundtracker clone
793. Red Sector demo maker V1.0 great! (*)
735. Flexi Base, a more friendly data base
843. Iconmania, a disk full of Icon utils.
640. Mobed V1.0, a movable object editor
623. C-Light, ray tracing program very good
613. Soundtracker Professional (Protracker)
993. Master Virus Killer V2.1, terrific!!
877. NORTH C V1.3 a 2 disk set £1.98
898. Audio Magic V1.1 full of utilities

DEMOS

617. The Byte Busters Mega demo, good
807. Evil Dead demo, for all you Sycho's (*)
759. Amos Creator II demo, official release
751. Colour Cycling, superb effects get it!
750. Budbrain II a new disk from Budbrain
656. Pussy Inership, good graphics and game
655. Unreal game demo, to show off your Amiga
654. Olympia, parallax scrolling at its best
598. Fractal animation, super mandelbrots (*)
597. Cool Fridge, superb Plasma effects here
547. Materialized, cryptoburners superb demo
539. Chromium, a great new demo by Scoopex
516. Purple, very large vector routines
321. Fractal Flight animation, unusual demo
287. Golam Gates Mega demo II, worth getting.
132. Dragons demo 1, has lovely raster effects
174. Ian & Micks mega demo, 9 parts to this
982. Total Rebate, from the Steve Wright show
983. Total Retrial, from the Steve Wright show
984. Total Restyle, from the Steve Wright show
985. Total Respray, from the Steve Wright show
986. Total Recount, from the Steve Wright show

MUSIC

796. Crusaders does Genesis, superb (*)
794. In a Silent Way, don't miss this disk!
980. Jarre Live, eleven good tracks of music
770. Arcane Music, 11 tracks for you to play
767. The 900/Oxygen remix, collect it now (*)
978. Give Me What I Want, Sam Fox sample
723. Sounds of DOB II, 17 tracks of music (*)
970. If only I could, Sidney Youngblood sample
718. Revolutions by Jean Michelle Jarre
848. A kind of magic, by Queen. Sampled (*)
716. Bomb the Base, 8 fab tracks to listen to
703. 808 remixes from the Beatmaster who else?

MUSIC

The following are £1.98 each 2 disk sets.

2. I should be so Lucky by Kylie, 5 samples
856. The power of love, by Huey Lewis, sample
301. Darkstar's music 9, 14 great tunes
417. Electric Youth by Debbie Gibson, great!
420. Lumberjack song from Monty Python
478. Made In Heaven by Kylie, a full 6 mins!
525. Flash by Queen, a great two disk set
968. Followin you, by Madonna great song
581. D-Mob music 4, 2 disks of good music

ANIMATIONS

43. Puggs in Space, a cute and funny demo
863. Iraq demo, rather comical animation
313. Revenge Horror Show, for psycho's only
394. Stamp Collector, an old but good demo
444. Fillet The Fish, similar to Puggs demo
631. Steves animations 1, has 8 cute anims.
632. Steves animations 2, has 6 cute anims.
789, Steves animations 3, has 6 cute anims.
790. Steves animations 4, has 5 cute anims.
791. Steves animations 5, has 6 cute anims.

The following animations all require 1 meg.

805. Franklin the Fly, hilarious and funny
763. Basketball player, superb ray tracing
866. Ami versus the Walker as reviewd
913. Mars, smooth space fighter animation
917. Juggette anim, and Juggette the revenge
633. Batman the movie, funny and amusing
625. Juggler II, the Juggler meets a lady
582. Stealthy II Manoevres, great cartoon
291. The Lotus Car chase from Agatron
865. Coyote Strikes back, poor Roadrunner
101. The very famous "Gymnast" demo
79. Education of Cool Cougar, very funny.

The demos below consist of 2 DISKS so each demo costs £1.98.. please remember

929. Maximum Overdrive, lots here & good
45. Kefrens mega demo 8, one of the best
66. Predators, great game to play as well
926. Mr Food, hilarious sample of record
199. Red Sectors, a must for demo collectors
201. RAF another of the classic demos
365. Budbrain, over 18 yrs for this, sorry
537. Monty Python's Secret Policemans Ball
614. Monty Python's Nudge Nudge, more humour
594. Hit the Road by Flash, multi part demo.

AMOS LICENCEWARE

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LPD2	Arc Angels maths	LPD13	Jigmania (*)
LPD4	Thingamajig	LPD14	Play it safe (*)
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LPD8	Learn & Play (*)	LPD18	Touchstones (*)
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Harlequin Revolution, *Overdose* and *Beyond Justice*, plus all the usual text articles and documentation. *Scanner* is a particularly interesting mag, and has for the last two issues provided the cream of the demos and games for you to enjoy. Nice to see such consistent quality from a disk mag, as some can be a bit on the ropey side. Get more details on Scanner from Telescan Computer Services, 63 Fleetwood Road, Blackpool FY5 1SB.

Value for money 9/10

The Disk 3

The Disk is a disk mag produced by Steven Lord, and you may recall that I looked at issue 2 in a recent issue of *Amiga Shopper*. I did say that a lot of what Steven had put on the disk was old but very good stuff. Well, this time he's clearly taken this to heart (that is if Steven takes a blind bit of notice of me, and why should he?) as this new issue is brimming full of new programs and reviews. There are some new fonts, a copy of the mouse bounce screen hack (very annoying), the *PPAnim* ANIM file player, *NoClick*, a skiing game called *Downhill*, various boot block creators/rippers, *SmartIcon*, plus submitted programs by readers and a whole pile of other stuff too. My favourite program is a very clever little program called *Aspro*, which remains resident in memory even after a warm boot and allows you to rip the tracker scores and graphics from a demo. This is a sort of software version of the snapshot carts you can buy, and looks like a very flash bit of code to me. This is by no means the best way of doing this, but still very impressive. You can get more details of how to receive *The Disk* from: *The Disk*, 6 Stubbing Brink, Hebden Bridge, West Yorkshire, HX7 6LR.

Value for money 9/10

GAMES

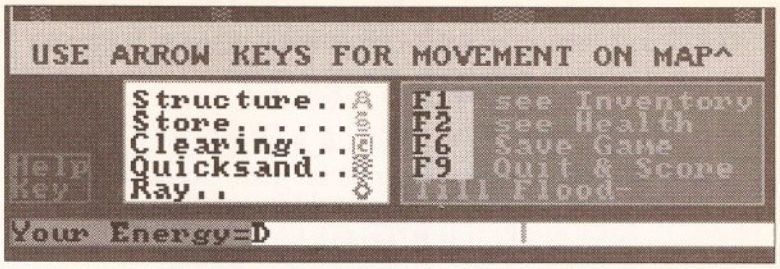
There was a time when the PD game was a thing to be laughed at, but nowadays the PD game is as good as its commercial counterpart, and in some cases even better.

Sinking Island

Amiganuts disk 880

This two-disk game is written in Amiga Basic, which is a feat in itself, that being the slowest and most user-unfriendly way of coding on the Amiga. But written it was, and Texan Amigist Terry Fike is the man to congratulate. The program is a graphic adventure, and the purpose of it all is to collect as much treasure as possible. The scope of the game is incredible, considering that it was all done in Basic. The only trouble with it is that it's a little slow for my taste, and that is where this great experiment falls down. The animated graphics are painfully slow, as are the screen transitions, although Lord knows how they were achieved using this prehistoric Basic in the first place. A for effort, but C for execution, Tez. Use *Blitz* or *HiSoft Basic* next time.

Value for money 6/10



***Sinking Island* is written in Amiga Basic – an impressive feat!**

Weird In Edgeways

Amiganuts disk 1088

Weird is right. This game is set on a circuit board, and your little character must propel himself around the board with the use of arrows which you drop from the top of the screen. Once your little pal is set in motion, you must divert him using another arrow until he has got around the whole board fixing all the bugs. An interesting diversion but a little strange to get going with at first.

Value for money 7/10

Zeus The Game

17 Bit disk 1058

This game is made by the Swiss group Zeus, and is an Amiga version of a Gameboy game, although which one is not made clear. Using the mouse you have to move the stones on to other stones containing the same symbol; when the two stones meet they disappear. It's quite a hard

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What's available?

Utilities
These are programs which help you use your computer. Some are just simple commands for your C directory for use from the CLI or Shell, while others are complete menu-driven programs to compress files, convert them from one format to another or even rescue broken disks. The best disks to look for are the collections with a selection of the best utils all squeezed on to one disk. Virus killers are some of the most useful PD utils, and being public domain they are free – users of many other kinds of computer have to pay good money for decent virus killers, but we get them for nothing.

Applications
Some of the best programs are PD. *SID*, for example, is one of the best graphic interfaces for AmigaDOS, and it's PD (or, to be more precise, 'shareware'). *SID* is a graphic front end for the AmigaDOS file system, allowing you to move files around, delete them, rename them, copy them and re-organise your disks. In fact, I don't know a single Amigahead who would be without his copy of the program. And there are many other kinds of programs too, from business to graphics applications. Check the PD libraries before you lash out some cash on a commercial program – you may find a PD solution which could save you loadsamoney (to use a rather outdated phrase).

Demos
This is a new art form. The demos are created by a team of hackers, usually called a 'crew' or 'team', who get together and have a 'late night hack attack' and create a dazzling demonstration of their programming abilities. The demos can be graphics- or music-based, but they always have the feel of a pop video, and the music is generally of the dance variety, although some more exotic sonix do come out from time to time. Demo teams usually go on to be professional programmers after a while, so their demo days are usually limited. Scoopex and Silents are two of the best teams, and also the likes of Kefrens are not to be missed. Imagine a cross between a dance record, a video and a lightshow and you're getting the general idea.

Game demos
In recent years, the various major software houses have watched the PD arena growing and have noticed that people buy demo disks, especially when on the cover of a magazine. So they put out demos, sometimes fully playable demos, of their new releases, allowing the punters to try the game before they buy. Demos of this kind usually turn up on the covers of magazines like our sister publication *Amiga Format*, and then before long the demos turn up on their own in PD libraries. A successful and popular demo translates into a very popular game – for example, take note of the enormous success of *Lemmings*, from Psygnosis, which started life as just such a demo.

Slideshows
Some Amiga artists spend a lot of time creating works of art on their computers, which is no good if nobody sees them. So many Amiga artists make slideshows of their work for public consumption. If you're very clever (or own one of the fab new snapshot cartridges) you can grab the art and examine it to see how it was done, and you could even use it as clip art in your DTP packages. (Beware, though, some PD artists may get a bit cross if you do. Remember that unless explicitly stated, copyright remains with the artist, which means that you can't reproduce the work without their permission.) Some of the most stunning Amiga art comes from a chap called Tobias Richter, an artist who lives in Germany. He uses a ray-tracer called *Reflections* (coming soon to the UK), and turns out some amazing stills and animations based on *Star Trek* and other sci-fi subjects. Watch out for him under the name Agatron.

Music Demos
Some PD authors are music nuts, who spend their lives churning out disks of tunes for you to play on your Amiga. Some are *Soundtracker*- or *Noisetracker*-sampled tunes from the charts, re-mixed in the Amiga. Others are synthesized tunes from the classics. Most are pretty good. If you like well-sequenced music, I think you'll be surprised at the very high quality of the tunes around on the Amiga PD circuit.

Disk magazines
Magazines on disk are not new, but there are more now than ever before. *Newsflash*, *17 Bit Update*, *Computer Lynx*, *Scanner* and *Jumpdisk* are prime examples of the type of thing I'm talking about, and they are, on the whole, very good. Magazines of this type usually contain PD software, demos and music, plus a lot of graphics and text as well. The text is normally reviews of software, or perhaps a bit of hardware, and is usually quite short to keep the amount of different text files up and leave space for programs too. The text is sometimes a bit on the ropy side, but that's what you get for having a writer who's an editor too. A spelling checker wouldn't hurt some of these guys, I can tell you. Not, of course, unless you hit them with the disk!

PD categories
There is some PD which is not free to all. This comprises:

1 Licenseware
These are games or programs which are licensed to specific PD houses, to prevent the free distribution of the program – although the price to the co[illegible] is more or less the same. *MED* is a good example, [illegible]'s a music program which is licensed to Amiganuts United. This program is sold by Amiganuts, and a proportion of the fee goes back to the author in Finland. This scheme works better than shareware (see below) from the authors' point of view, as the money is handed over when the disk is purchased, rather than trusting the users to pay up later.

2 Shareware
This is a branch of PD that you pay for, but are allowed to use free for a short time first to see if you like it. It isn't expensive, as the author usually only asks for between £5 and £25 for his or her efforts. In most cases it's worth paying in the end, as you get free upgrades and documentation.

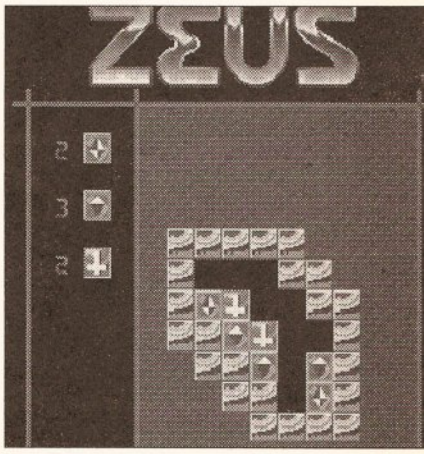
There are lots of 'ware'-type schemes. Freeware is usually the name given to normal PD. Beerware was one idea where the fee for using the program was to send the author some beer. Exclusiveware is a new idea, which works a lot like licenseware. Others, like Charityware – if you keep the program you are requested to donate a sum of money to a (normally) specified charity – are reasonably easy to work out from their descriptions.

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strategy game, and since there is precious little in the way of instructions, all the harder. But it is addictive – once you crack the first screen you're hooked.

Value for money 8/10

That's all, folks
If you have any questions about PD or some viewpoint you might like to share with me, then why not drop me line at Public Domain World, *Amiga Shopper*, 30 Monmouth Street, Bath,



Addictive and difficult, *Zeus* is well worth checking out.

Avon BA1 2BW. Or e-mail me on any of the follwing bulletin boards: CIX (snouty@cix.compulink.co.uk), Prestel (219997854), Telecom Gold (74:mik2077) or The Direct Connection (uad1135@dircon.uucp).

And before I go, just a short word (rant) about some public domain houses who have written complaining that I only review stuff by certain other PD houses.

Now, usually I wouldn't mind fielding allegations of corruption. I'm as corrupt as the next man. (Only kidding!) But when someone writes and says something in the order of "You never review any stuff by a really good software house like us, you only review people who advertise in the magazine" I get a little bit cross. Not only that, but in one particular case the two poorly labelled disks in the jiffy bag send by just such a complaining PD house **don't even work**! Come off it, guys, give me credit for a little intelligence. If you, as Amiganuts, 17 Bit, NBS, Softville, AMOS PD and many others do, send me a pile of disks every month, you stand a chance of getting reviewed. It's not advertisers who get the best reviews, it's the vendors of the best software I see in any one month!

Anyone who sends me two disks that don't work, together with an abusive letter, simply gets their disks and letter put straight in the bin, and that's the scoop, Coop. So wise up and get professional. AS

ISSUE SIX ON SALE SEPTEMBER 5

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NEXT MONTH

Next month you might notice a change or two in *Amiga Shopper*. We're going to make Britain's best value computer magazine an even better buy with a sparkling design and even better articles to keep you interested through September.

Word processors take centre stage next month; we all need them but there are dozens available and it can be difficult to make a decision. To help you out, we look at 13 WPs currently on the market, explain what they can do and choose the best buys.

Also next month we take a detailed look at the Video Toaster, the amazing low-cost desktop video system from NewTek.

And of course you will find all the regulars: comms, AMOS, video, DTP, graphics, AmigaDOS, programming, education, business, music: the combination which makes *Amiga Shopper* the best value Amiga magazine you can buy.

In your newsagents on Thursday September 5, only 99p. You can't afford to miss it.

GUARANTEE YOUR COPY OF AMIGA SHOPPER BY RESERVING IT AT YOUR NEWSAGENT

Don't miss out on issue six of *Amiga Shopper*. Every serious Amiga user in the country is trying to get their hands on this magazine and you don't want them to beat you to it. At only 99p they sell out fast, so to guarantee your copy, either:

● Make sure you remember to rush into your local newsagent and buy it on the morning of Thursday, September 5.
● Fill in this form and give it to your friendly neighbourhood newsagent, who will make sure that it is reserved for you or even delivered to you. (Did you know that W H Smith and John Menzies will also save a copy of ***AMIGA SHOPPER*** for you?)

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TO THE NEWSAGENT – Amiga Shopper goes on sale on the first Thursday in the month. It is published by Future Publishing and is available from your local wholesaler. Please return this form to Kate Hodges, Future Publishing, 30 Monmouth St, Bath BA1 2BW, to enter our free prize draw.

ADVERTISERS INDEX

HiSoft BASIC

A BASIC Standard

HiSoft BASIC is the answer to your programming prayers; a fast, interactive and easy-to-use 68000 BASIC system conforming to the industry standard for the BASIC language.

HiSoft BASIC is designed to be as compatible as possible with the AmigaBASIC interpreter, while offering you a friendlier, easier-to-use and infinitely more powerful language. In addition it has many of the features of the world-standard Microsoft QuickBASIC, on the PC.

Some of HiSoft BASIC's features include:

- *Structured programming, using long IFs, multi-line functions, CASE, REPEAT and procedures*
- *Program line numbers are optional, and alphanumeric labels can be used*
- *Full recursion for procedures & functions; local variables and arrays as parameters*
- *Five types of variables*
- *Program size limited only by memory*
- *Variable size limited only by memory*
- *Integer and character constants*
- *Compiles the majority of AmigaBASIC programs without change*

Full support of the Amiga is included as standard with extensive window, screen and graphics commands. Amiga libraries can also be accessed as if they were built-in statements allowing complete machine access.

HiSoft BASIC includes full MENU support, with event trapping and powerful sprite routines, using the OBJECT keywords.

Programs can execute in their own window(s) or use the CLI window for minimum size. CLI-type programs may be easily written and made resident since they are fully re-entrant.

HiSoft BASIC is a no-limits language; string variables may be up to 16Mbytes in length and there are no limits on array sizes either (subject to available memory). Code generated is fully 68010/020/030 compatible.

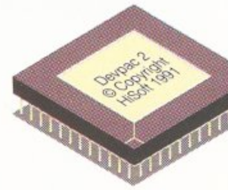
Compiled programs have no run-time overhead; all compiled programs share an Amiga library. which may be distributed with programs without charge.

Extend

An add-on package for HiSoft BASIC, Extend includes routines for handling IFF files, gadgets, sub-menus, sound, HAM mode and much more. It is supplied as a library for ease of use.

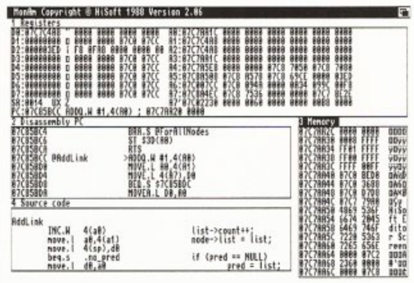
Normally HiSoft BASIC costs £79.95 and Extend costs £24.95 … but see the coupon below for a very special offer for the two packages together!

Devpac 2



Easy Assembly Language

Devpac Amiga Version 2 is widely regarded as the most powerful, complete, assembly language development system for the Amiga. It incorporates an integrated editor/assembler/linker/debugger, together with a stand-alone assembler and debugger and all the necessary include files and many examples.

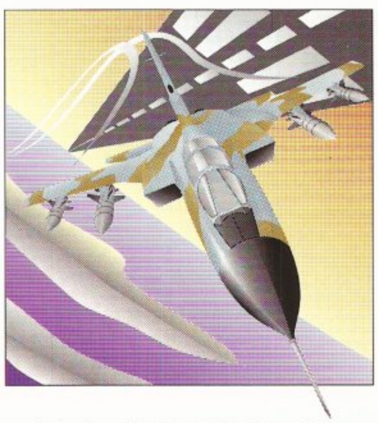


Complete with extensive ring-bound manual detailing all aspects of the package, plus debugging strategies, Devpac is *the* choice for beginners and assembler experts alike.

RRP is £59.95, but see the coupon below for a very special offer on this essential package.

ProFlight takes off!

ProFlight, the extremely accurate and flyable Tornado flight simulator from HiSoft, is *now* available for all the Amiga computers.



First released on the Atari ST where it has won a high degree of critical acclaim from reviewers and users alike, ProFlight is not only one of the most technically realistic simulators around but it is also tremendous fun to fly. As you would expect, the Amiga version has much improved sound and graphics!

You can fly peaceful reconnaissance missions or roar into attack after carefully planning your combat mission. ProFlight is supplied with a comprehensive, ring-bound flight manual.

SAS C5

SAS Institute (the parent company of Lattice Inc.) has taken over the development and sales of the Lattice C 5 compiler for the Amiga and released a new version, 5.10a.

The major features of this latest version are:

AmigaDOS 2.0 support, LSE AREXX support, improved Workbench usage, many performance improvements, support of _aligned, automatic near to far conversion, C++-style comments, compile/link options now read from an environment variable … and more.

We believe that these improvements and enhancements in this version establish SAS C5 as the ultimate Amiga C compiler. The package includes 680x0 compiler, linker, screen editor, assembler, highly intelligent global optimiser, source level debugger, code profiler, librarian and a host of tools and examples.

SAS C5 from HiSoft costs £229 (but see our special offer on the coupon) and includes full UK technical support, which is not available from other sources.

Upgrades cost £34.95 (from version 5.0x), £79 (from version 4.xx) or £99 (from version 3.xx).

Priority Order Form

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